MISSOURI
BOTANICAL
GARDEN

bulletin

Winter 2009–2010 Vol. 98, No. 1 www.mobot.org

SHOUT
SHARE
IT

photo by Kristi Foster

President's Comment

As 2009 draws to a close, we look back over a year of 150th anniversary celebrations—from the floral clock to founder's day—and think Henry Shaw would have been proud. This year's Gardenland Express holiday flower and train show is our last "hurrah" in celebration of the Garden's 150th anniversary, so I hope you won't miss it. Amid the spectacular poinsettias and holiday greenery (mostly grown in the Garden's greenhouses), the show features miniatures of historic Garden buildings.

Speaking of historic buildings, the Garden's geodesic dome greenhouse, the Climatron®, turns 50 in 2010. First opened to the public October 1, 1960, the Climatron has been called a "mid-century modernist gem" and is listed as one of the most important architectural works in U.S. history. Stop by the Gate Shop and purchase a copy of the new book about the Climatron by noted modernist scholar Eric Mumford, professor of architecture at Washington University. We are delighted that Eric will sign books on December 6 and then return on January 21 to speak about the Climatron to our members.

In October, the Garden hosted an historic meeting of scientists from former Soviet republics. Although many of these countries do not have diplomatic relations, the scientists met to work cooperatively to conserve plants in the threatened Caucasus region, which spans six nations. Everywhere around the world, in the 38 nations where Garden scientists do research, politics play a role. Early this year, the staff at one of our longest standing satellites—the Madagascar program, established 1971—found themselves in the middle of a coup. The subsequent lawlessness has led to plant and animal poaching—and threats on our Malagasy staff, who are trying to defend their nation's flora.

Although humans depend on plants for every aspect of our lives, we are causing a large proportion of them to vanish before our very eyes. Population growth, combined with our rising levels of consumption, our technologies, and the associated global climate change is causing the extinction to which we are witnesses. Our annual giving campaign—the Garden's Henry Shaw Fund—raises funds for our most urgent operating needs. If you can, please make a donation this year to help. Give online or call (314) 577-9500.

See you on the grounds!

Peter H. Raven

Dr. Peter H. Raven, *President*

> *To discover and share knowledge about plants and their environment, in order to preserve and enrich life.*
>
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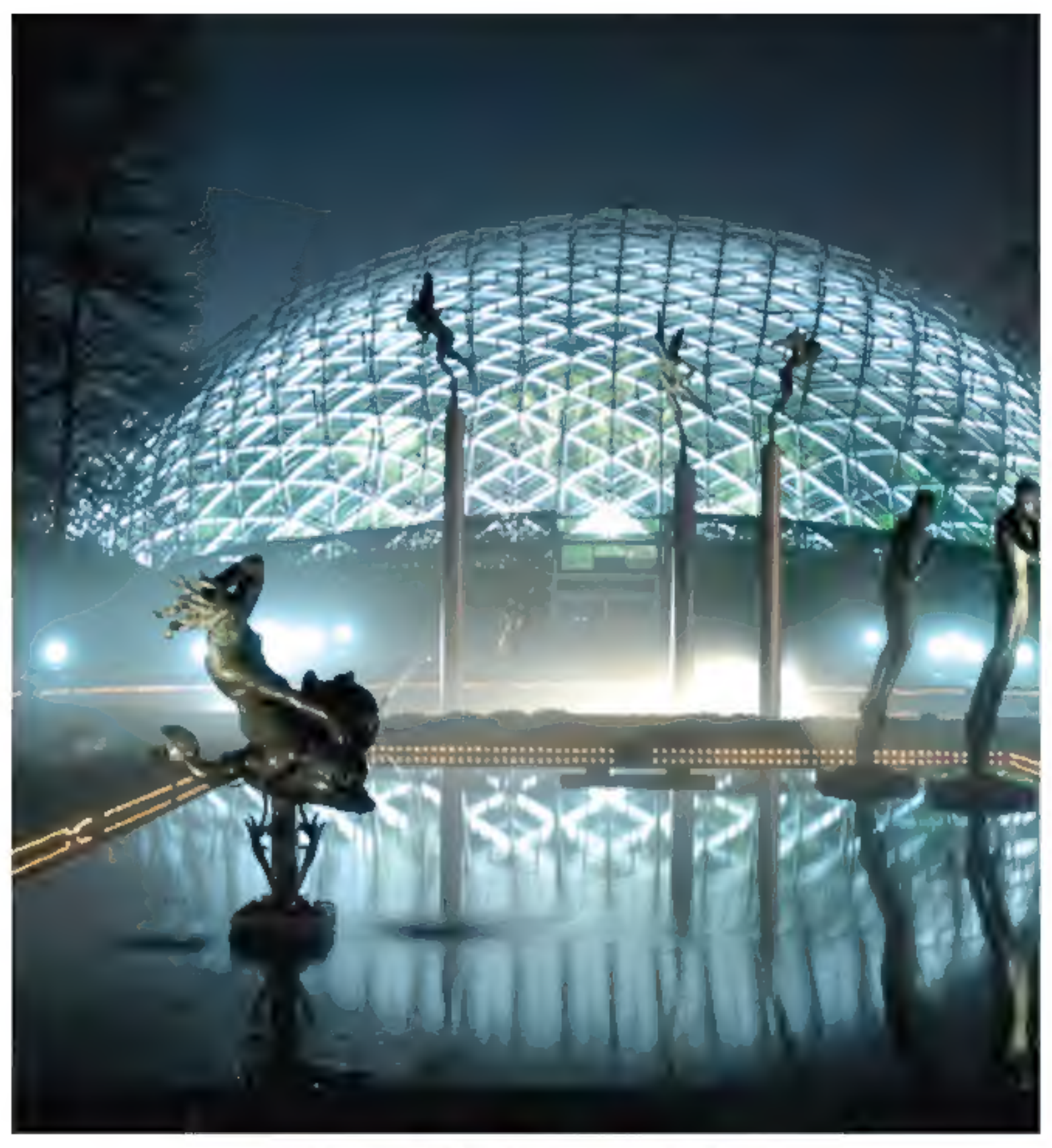

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Poinsettia (*Euphorbia pulcherrima*)
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Parking is free.

General Admission

Adults $8; Members and children 12 and under free
* *Special events require an additional fee.*
St. Louis City and County visitors, with proof of residency, receive a discount on admission and free admittance on Wednesday and Saturday mornings until noon (unless special event pricing applies).

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NEWS

Garden Membership Blooms in 2010

When you receive an invitation from the Missouri Botanical Garden to renew your membership this year, you may notice a few changes. Regular members will be renamed "Garden" members. Members 65 and older who renew at the base membership level will be renamed "Garden Seniors." The price and benefits stay the same. The Garden now offers a new membership level – Garden Plus. Members at this $95 level will receive free everyday admission for four adults, any children 12 and under, and 12 Bonus Bloom passes.

clip and save

2010 Members' Days and Events

Every month Garden members enjoy special events, tours, and lectures. Plan to join us in 2010!

Thurs., Jan. 21	History of the Climatron
Fri., Jan. 29	Orchid Show Preview
Sat., Feb. 13	Valentine's Dinner Dance
Sat., Feb. 20	Young Friends' Trivia Night
Thurs., Mar. 4	Vegetable Gardening (2 sessions)
Thurs., Mar. 18	March Morpho Mania
Sat., Mar. 27	Eggstravaganza
Tues., May 11	Rose Gardening
Fri., May 21	Young Friends' Climatron and Cocktails
Wed., May 26	Rose Evening
Fri., June 11	Musical Evening
Fri., June 18	Midsummer Night's Dance
Fri., July 9	Family Picnic
Thurs., Aug. 12	Know Our Water Lilies
Fri., Aug. 27	Young Friends' Be a Kid Again
Sun., Sept. 12	Grandparents' Day
Thurs., Sept. 23	Prepping for Spring Bulbs
Sun., Sept. 26	Prepping for Spring Bulbs
Wed., Oct. 13	Owls at the Butterfly House
Fri., Oct. 15	Young Friends' Fest of Ale
Sun., Oct. 24	Ghouls in the Garden
Thurs., Nov. 11	Holiday Decorating
Wed., Dec. 1	Gardenland Express Evening
Sat., Dec. 4	Breakfast with Santa
Sat., Dec.11	Holiday Concert

Times and dates subject to change. On members' days and events, members enjoy discounts of 10 percent in Sassafras and 20 percent in the Garden Gate Shop and Little Shop Around the Corner.

photo by Susan Flowers and James Trager

Teens tagging monarch butterflies at the Shaw Nature Reserve as part of the Shaw Institute for Field Training (SIFT) program, an introduction to fieldwork and scientific research for teens.

Subject: one of ours made it!

Hello All,
I was just checking the Monarch Watch website and checked the list for butterflies tagged in 2008 that were recovered in Mexico this year. One of the 6 monarchs that was tagged by the SIFT students on 9/26/08 was recovered in El Rosario, Mexico on 3/2/09.

Pretty cool!

Lydia Toth
Senior Manager, Education

MBG Hosts Historic Meeting

photo by Kathryn Lebbon

Garden president Dr. Peter Raven with Dr. Vassily Yarmischko, director of the Komarov Botanical Institute, St. Petersburg, Russia.

In October, the Missouri Botanical Garden hosted an international symposium on plant conservation of the Caucasus. The Caucasus Mountains are situated between the Black Sea (Europe) and the Caspian Sea (Asia), and span six countries. The vegetation there is remarkably diverse, but with political tensions high, no country in the region was able to initiate a collaborative work. The Garden invited scientists from Armenia, Azerbaijan, Georgia, Russia, Turkey, and the U.S. for the first time to discuss cooperation to create a list of endangered plants. Without a list of endangered plant species, there is no scientific basis for conservation. "Plants know no borders," says Garden associate curator Dr. Tatyana Shulkina.

Pardon Our Progress!

The Garden's east parking lot in front of the Ridgway Visitor Center will be closed this winter for much needed repairs and improvement. The west lot will remain open at this time. In the event that the west lot is full, visitors should use the free parking at the Metro multi-modal lots at the corner of Shaw and Vandeventer.

Improvements include several new sustainable features. A portion of the lot will be paved with "pervious" concrete, which allows rainwater to pass directly through to be reabsorbed by the ground. A rain garden will also help keep run-off to a minimum. Lighting, irrigation, and plantings will be improved as well. This project has been made possible by federal transportation funds through MoDOT. Work is expected to be completed by April 2010.

photo by Dr. Pat Raevn

From left: Sir Peter Crane, former Director of Kew, now Dean of Yale School of Forestry; Dr. Peter Raven; Dr. Stephen Hopper, current Director at Kew; and Sir Gillian Prance, former Director of Kew preceding Peter Crane, before a bust of King George III.

Kew International Medal

In October, the Royal Botanic Gardens, Kew awarded their first ever International Medal to Missouri Botanical Garden president Dr. Peter H. Raven for "distinguished, internationally-recognised work aligned with the mission of the Royal Botanic Gardens, Kew." The medal was presented in conjunction with the symposium held at Kew in honor of their 250th anniversary, the same year as Missouri Botanical Garden's 150th.

photo courtesy That Uppity Theater Company

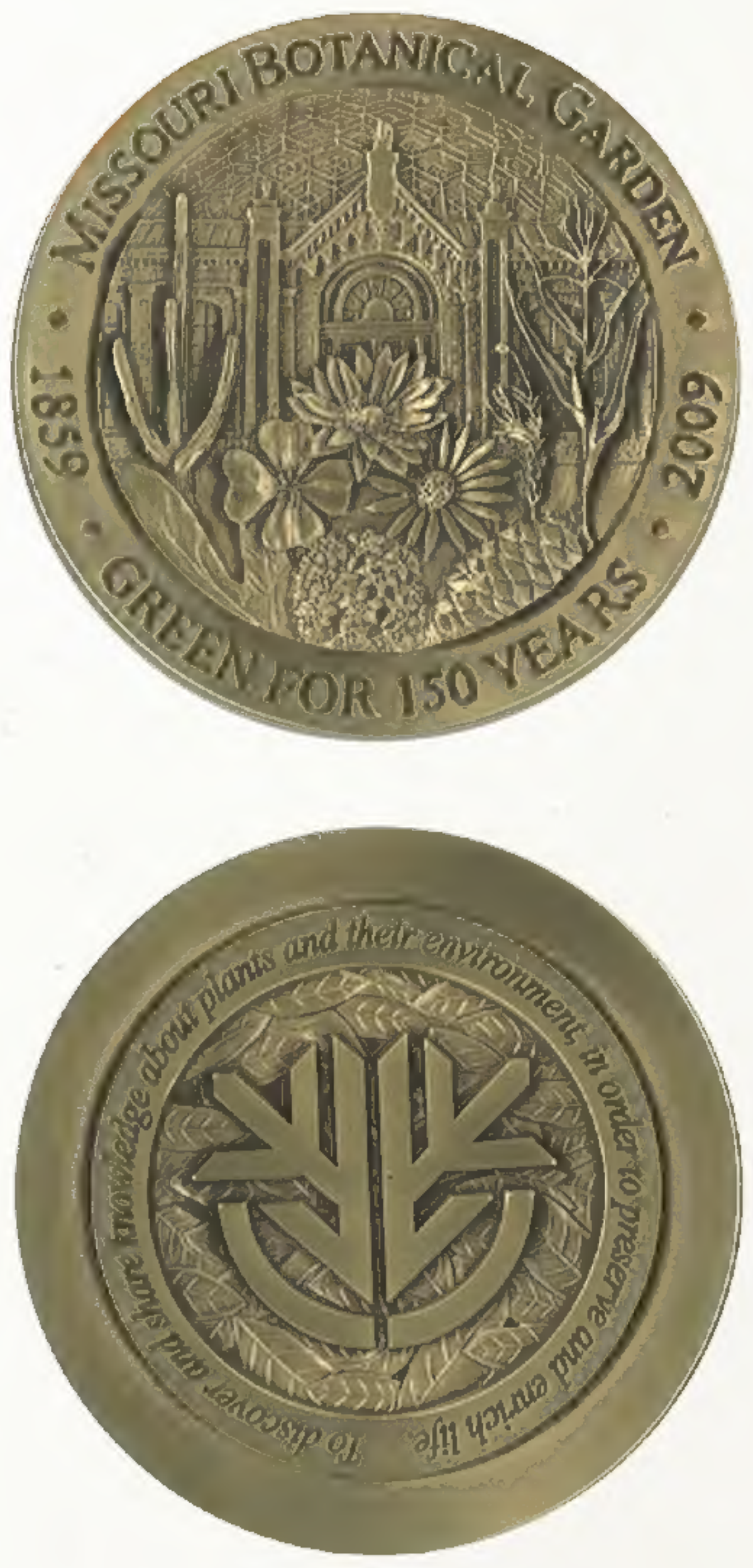
That Uppity Theater Company

That Uppity Theatre Company

In October, That Uppity Theatre Company brought the DisAbility Project to the Garden, performing for 300+ Garden staff. Founded in 1995 by artist Joan Lipkin and occupational therapist Fran Cohen, the DisAbility Project creates and performs original material to present disability as "simply another form of diversity that deserves understanding and thoughtful response." The company is composed of people both with and without disabilities as a model of inclusion and has won numerous awards and international recognition. "We were thrilled to perform at the Garden, where there are so many positive experiences for people with disabilities," says Lipkin. She cited the Zimmerman Sensory Garden for the sight-impaired and the Ruwitch Garden for All in the Kemper Center for Home Gardening, as well as a network of wheelchair-accessible paths, as models of inclusion.

MBG Anniversary Medal

In 2009, a new medal in honor of the 150th anniversary of the Garden was commissioned. Designed by Charles P. Reay, creator of the Garden's logo, the design celebrates the history of the Garden through two of its truly iconic buildings: the Linnean House and the Climatron. To represent scientific discovery, the medal also includes nine plants that have featured prominently in Garden history or research, including sassafras, Engelmann spruce, saguaro, water lilies, evening primrose, fringe moss, milkweed, ragwort, and corn. The medal was presented to trustees, the members' board, senior management, and major patrons.


MISSOURI BOTANICAL GARDEN
1859
2009
GREEN FOR 150 YEARS
plants and their environment in order to preserve and enrich life

The newly commissioned MBG 150th medal.

EarthWays Energy Grant

In September, the Missouri Department of Natural Resources awarded a contract for management of their energy efficiency for municipalities program. The Garden's EarthWays Center is part of the winning team. Shaw Environmental & Infrastructure Group (unaffiliated) is the project lead. The program, *Energize Missouri Communities*, uses federal stimulus funds to coordinate the outreach, application process, and management of projects across Missouri that will generate green jobs and increase energy efficiency in municipalities. EarthWays Center will assist with the outreach and marketing efforts of this grant.

Threatened Species in Indochina

The Garden recently received a project grant from the Critical Ecosystem Partnership Fund (CEPF) to assess the conservation status of plant species in Indochina that are in danger of extinction in the near future. **Dr. Jack Regalado**, our program leader in Vietnam, will carry out the project in partnership with the Species Program of the International Union for Conservation of Nature (IUCN), Botanic Gardens Conservation International (BGCI), and institutions in Vietnam, Cambodia, Laos, and Thailand. The project will assess some 450 plant species, including the 248 species currently listed as being in danger of extinction. The results will be useful for decision-makers and conservation managers in protecting threatened species and managing key natural areas.

Art takes Flight

Guests to Art Takes Flight at the Sophia M. Sachs Butterfly House in September enjoyed great food, drinks, music, and the opportunity to bid on work from regional artists. The Garden thanks committee members, sponsors, donors, and guests for making the evening a success. Their contributions support efforts at the Butterfly House to raise awareness about the delicate relationships among animals, plants, and the environment through educational programs and exhibits.

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Guests to Art Takes Flight peruse works of art available for bid.

Mimi and Marvin Rennard and Fanny Katz

Dr. and Mrs. David Lange

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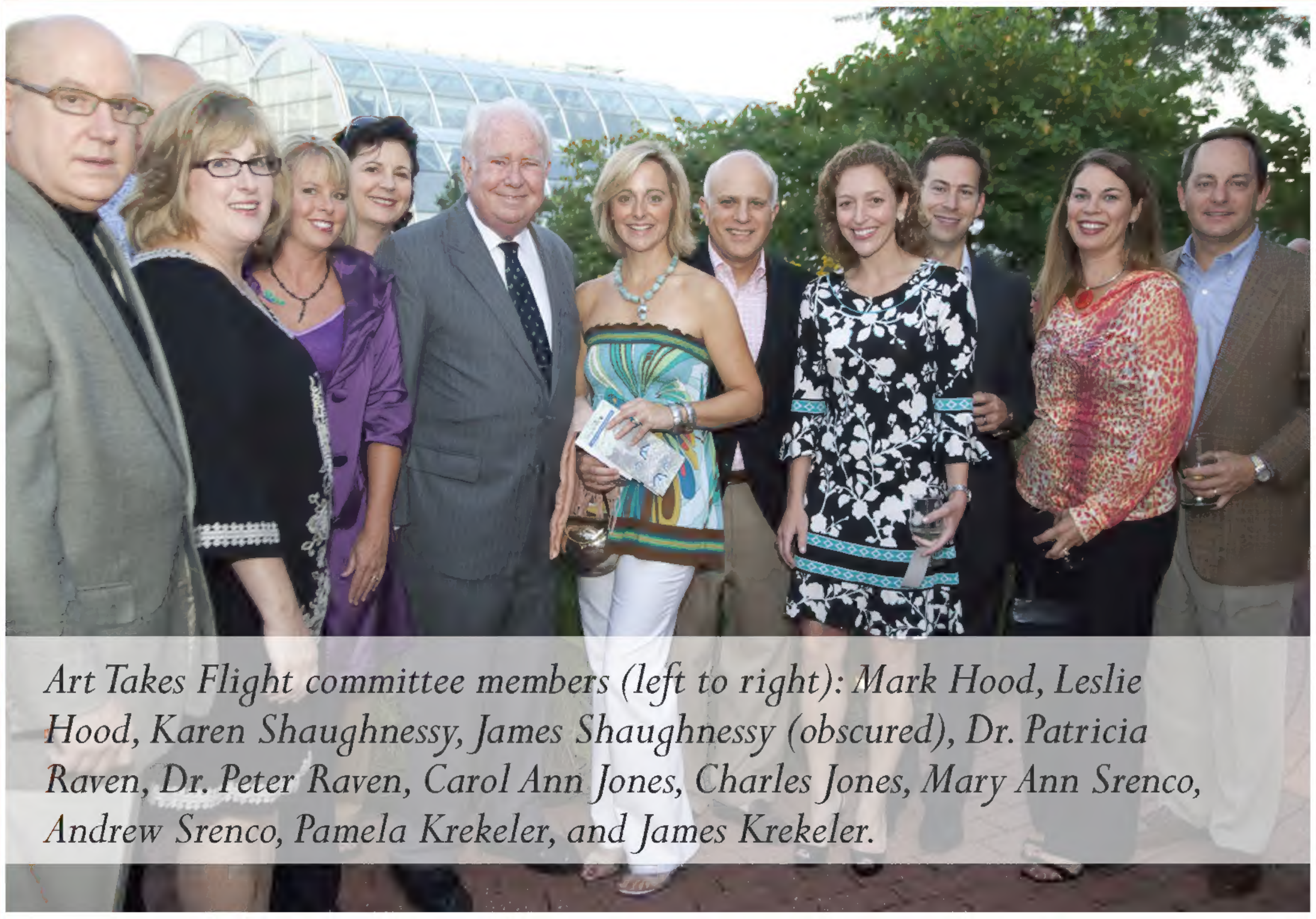


Art Takes Flight committee members (left to right): Mark Hood, Leslie Hood, Karen Shaughnessy, James Shaughnessy (obscured), Dr. Patricia Raven, Dr. Peter Raven, Carol Ann Jones, Charles Jones, Mary Ann Srenco, Andrew Srenco, Pamela Krekeler, and James Krekeler.

photos by Mary Lou Olson and Bobby Sanderson

Friends of the Garden enjoy an evening reception celebrating the success of the Garden's Plants of Merit® program at Bowood Farms.

Plants of Merit®

On September 13, the Plants of Merit program benefit drew nearly a hundred people to Bowood Farms Nursery, where they enjoyed specialty cocktails with local seasonal selections from Café Osage. Donations will be matched by the William T. Kemper Foundation—Commerce Bank, Trustee, through a challenge grant for the Plants of Merit program.

Barbara Barenholtz and Milton H. Hieken

Ken and Liz Teasdale and Lizzy McPheeters Rickard

Brandon and Sarah Royal and Melanie Jones

Ask me how to join Young Friends

Young Friends Committee Members Danielle Lee and Sara Gilette

FEST-OF-ALE

On October 16, over 100 Garden Young Friends enjoyed an autumn evening filled with live music, plentiful appetizers, and beer provided by Anheuser-Busch. Young Friends is a program for professionals in their twenties and thirties which aims to advance the Missouri Botanical Garden's mission "to discover and share knowledge about plants and their environment, in order to preserve and enrich life."

CLIMATRON 50

THE CLIMATE MACHINE

A Mid-Century Modern Gem Turns 50

In 2010, the Climatron® conservatory celebrates a half-century. Now available at the Garden Gate Shop, the Missouri Botanical Garden has published a colorful illustrated book on the structure with an essay by noted architecture scholar Eric Mumford and foreword by Dr. Peter Raven. "The Climatron is not only one of the most famous icons in St. Louis, but among the most important architectural achievements in America," writes Mumford. In addition to rarely-before-seen archival images and new contemporary photography, the book also contains over a dozen images by noted 3-D photographer David E. Klutho. (3-D glasses are included.)

THE MISSOURI BOTANICAL GARDEN
CLIMATRON 50
A CELEBRATION OF 50 YEARS

PURCHASE YOUR COPY

The book *Missouri Botanical Garden Climatron: A Celebration of 50 Years* is now available in the Garden Gate Shop or online at www.gardengateshop.org for $19.95. Garden members receive a discount!

The publication was funded in part by a grant from the Gertrude and William A. Bernoudy Foundation.

THEY HAD CONSIDERED OTHER NAMES FOR THE NEW STRUCTURE—PLANTOSPHERE, SYLVARIUM, FLORADOME—BUT DECIDED THAT **CLIMATRON**, WITH ITS GREEK LAST SYLLABLE MEANING "MACHINE," WAS THE BEST CHOICE...

An excerpt from the book...

In the ecologically diverse grounds of the Missouri Botanical Garden in St. Louis stands a rare midcentury modernist architectural gem known as the Climatron. Based on Buckminster Fuller's geodesic dome concept, it was designed in 1959 by the local architectural firm of Murphy and Mackey, with engineers from the Fuller-founded firm of Synergetics. Its construction was part of the successful effort at the time to revitalize the Garden by its dynamic director, Frits Went, then one of the world's most influential plant scientists.

In 1976, the national American Institute of Architects named the Climatron as one of the most important buildings in American architectural history, as it was the first geodesic dome greenhouse. It represents an unusual convergence of the ideas of two mid-twentieth century American visionaries, Fuller and Went. Although it is now mainly known as a popular place to view rare tropical plants, Went's original vision was that the new structure would be a center of scientific research on plant growth under controlled climatic conditions. Within a single, column-free structure, Went planned to replicate at least four different climates, a further extension of the "phytotron" concept he had introduced as professor of botany at Caltech in Pasadena in 1949. After being recruited to lead the Garden in 1958, Went decided that building the Climatron—a term that he invented—would be a way to further extend these ideas and at the same time create a memorable public icon for the renewed Garden.

Although the Missouri Botanical Garden had been one of the leading centers for botanical research in the nineteenth century, it had fallen on hard times by the 1950s. The severe coal smoke problem in St. Louis in the 1920s had led the Garden to open another site in 1925, now called the Shaw Nature Reserve, some 32 miles farther west. Attendance at the original site had declined rapidly during the Great Depression, paralleling the decline of the city itself. When Went was given an inaugural tour of the Garden during his 1958 job interview, he found it to be a "rather depressing experience," and he noted in his diary that the aging greenhouses were in bad repair and that smog had killed off almost all the conifers. Went told Robert Brookings Smith, the chairman of the Garden Board of Trustees, that he could accept the position of Director for a "limited time only," just long enough to put the Garden back into a position of international leadership in plant research. [...] Went soon embarked on plans to rebuild part of the Garden in time for the centennial year celebration planned for 1959. [...] The Climatron would debut on October 1, 1960.

To learn more about the Climatron, visit www.climatron.org.

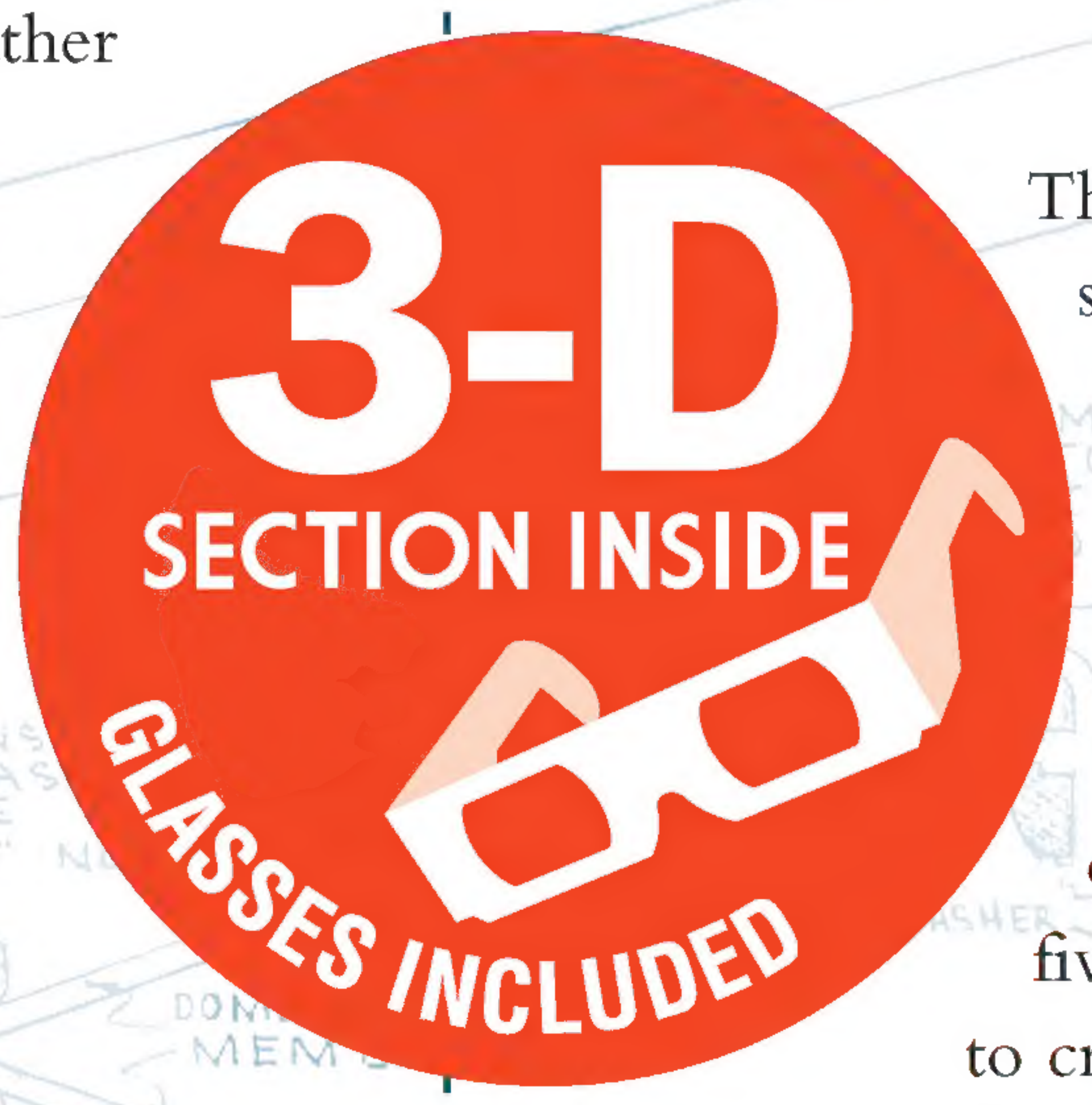
photo by Erin Whitson

photo by JJ Lane

Tropical cecropia in the Climatron.

AUTOGRAPHED CLIMATRON BOOK

Author and Washington University Professor Eric Mumford signs copies of the new Climatron book Sunday, December 6, noon to 2 p.m. in the Garden Gate Shop. *Save the date:* Thursday, January 21, Members' Day includes a lecture by Professor Mumford with a guided tour of the Climatron to follow.



The new book includes a section of 3-D photography and a pair of 3-D glasses for viewing. Images are by St. Louis-based photographer David E. Klutho, who is the author of *In Your Face 3-D*.He used five different 3-D camera rigs to create the amazing images of the Climatron inside and out.

Weathering the Storm

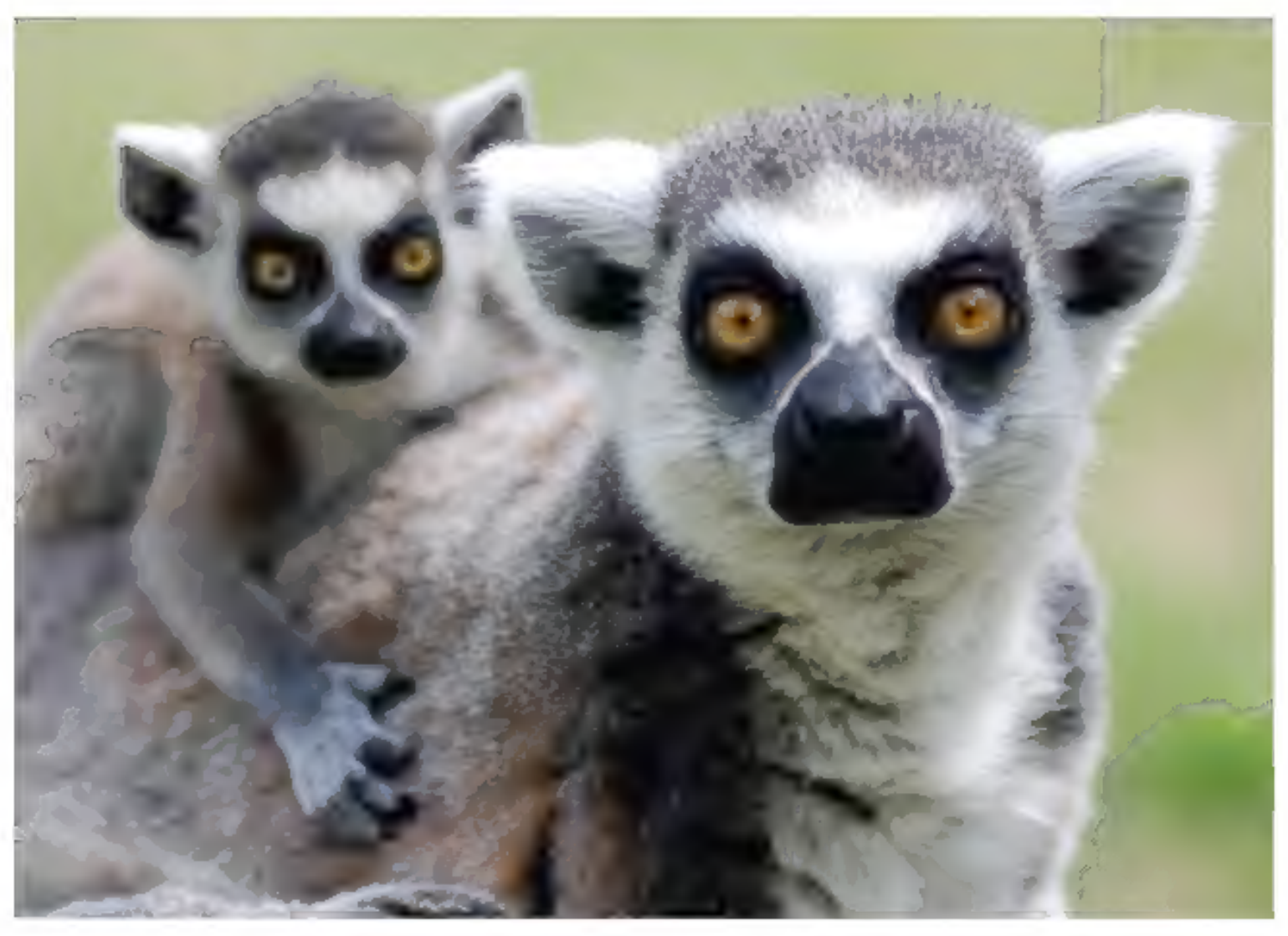
An Unstable Madagascar Hinders Conservation Efforts

Above: A forest in Madagascar showing human environmental damage from illegal logging.

by Chris Birkinshaw, Technical Advisor,
Missouri Botanical Garden Program in Madagascar

The year 2009 has been an exceptionally challenging year for both the Malagasy people and Madagascar's rich and unique flora and fauna. In January, the simmering power struggle between Madagascar's elected President Marc Ravalomanana and parts of the opposition led by the Mayor of Antananarivo, Andry Rajoelina, came to a boil. Street protests were brutally repressed, parts of the military mutinied, and the President was forced into exile to be replaced by a weak transitional government (led by Rajoelina) that was considered illegitimate by most of the international community.

The impact of this political instability on the Malagasy people and their environment is extremely serious. Poverty has increased as businesses, unable to function normally, have shed staff and as foreign aid agencies have withdrawn their support. In urban centers, looting and burglary have become more frequent. In Madagascar's remaining forests, particularly those in the northeast, the anarchic exploitation of timber and precious woods has surged.



Lemurs are also threatened by poachers.

Madagascar has 47 species of rosewood and over 100 ebony species that occur nowhere else. Many are now at the brink of extinction. Roving and violent lumbermen hunt endangered lemurs for food while they illegally harvest these woods. Forests themselves are being degraded as trees are felled, processed, and dragged to adjacent rivers or roads for transport to the coast. No forest that contains precious woods is safe, and the country's most prestigious nature reserves and popular tourist

Containers of illegally harvested rosewood waiting at the port in Vohemar for export.

destinations, such as the Marojejy World Heritage Site, the Masoala National Park and the Mananara Biosphere Reserve, have been the focus of intensive exploitation.

The trade is backed by powerful businessmen and encouraged by corrupt politicians. Currently thousands of rosewood and ebony logs, none of them legal, are stored in Madagascar's east coast ports Vohemar, Antalaha, and Toamasina. A recent decree by the provisional Malagasy government allows their export and will surely encourage a renewed wave of environmental pillaging. Never has Madagascar's extraordinary biodiversity been more threatened.

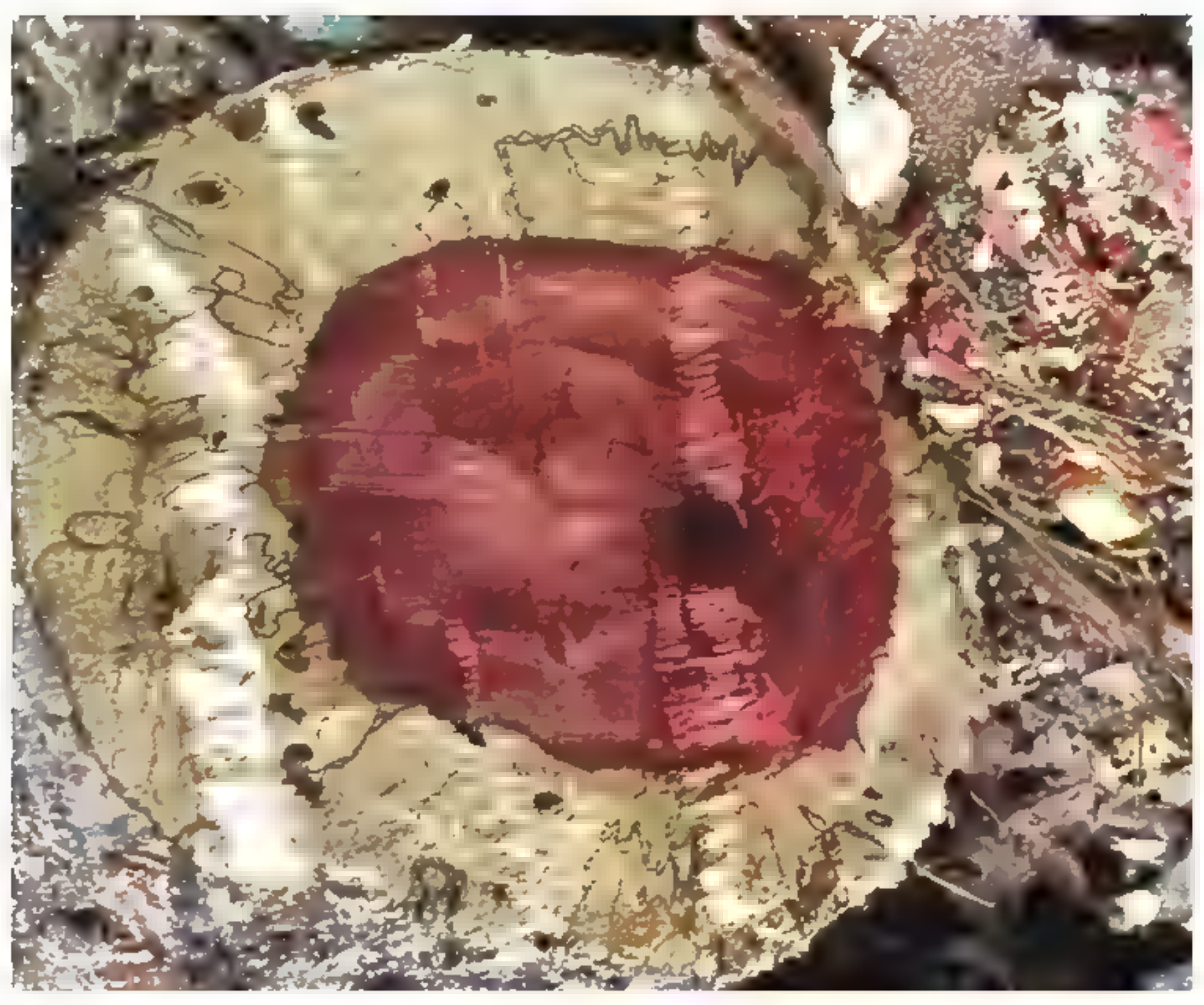
Madagascar's conservation organizations, including the Garden, have joined forces in an effort to combat this destruction. However, in reality, anarchy is likely to reign until a powerful and legitimate government once again exerts its influence—or until all valuable woods have been harvested! As you enjoy the tranquility of our lovely Garden in winter, save a good thought for the Garden's brave and dedicated Malagasy staff as they continue to struggle to preserve the amazing and rare flora and fauna of Madagascar for future generations.

Never has Madagascar's extraordinary biodiversity been more threatened.

End the exploitation!

Your contributions to the Garden's Henry Shaw Fund, our year-end appeal, help support conservation of rare and endangered plants in Madagascar and other imperilled countries. Won't you please consider making a tax-deductible gift as part of your charitable contributions for 2009? For information or to charge your gift by phone, please call (314) 577-9500.

MBG's forest police at Makirovana-Anjambalava.



Cut trunk of rosewood showing how the tree gets its name.

Do you know where your guitar came from?

Ebony and rosewood are both used in the manufacture of musical instruments, among other items. In October, the Garden and Saint Louis Zoo joined conservationists in a letter to the government of Madagascar. The letter calls for a boycott of Malagasy wood products. So before you buy, ask where the wood used in manufacture originated. Visit www.mobot.org/boycott.

Reading Green

by Jean Ponzi, Green Resources Manager

The temperature's dropping and the days are short. What better time to curl up with a good book and envision a healthy planet? What better gift for the holidays than a good, green book? These picks represent "tried-and-true" selections from my reading favorites, chosen because they are great reads.

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ANIMAL, VEGETABLE, MIRACLE
A YEAR OF FOOD LIFE
BARBARA KINGSOLVER
WITH STEVEN L. HOPP AND CAMILLE KINGSOLVER
P.S.
Native Landscaping for Wildlife and People
DAVE TYLKA
There's A Hair In My Dirt! A Worm's Story
Gary Larson

photo by Kathryn Lebbon

All book selections are available from the Garden Gate Shop, where members always receive a discount!

Books

Animal, Vegetable, Miracle by Barbara Kingsolver

The bestselling novelist chronicles her family's one-year commitment to eat only local foods. Adventures range from sweaty marathons in the canning kitchen during prime tomato time, to an intimate lesson in home-making gourmet cheese, to 9-year-old daughter Lily's chicken-and-egg business plan. This delicious read will move you out of the armchair and into the garden—or at least off to support your nearest farmers' market. Includes thoughtful food-issues notes by Kingsolver's husband Steven L. Hopp and (family tested!) recipes contributed by her older daughter Camille Kingsolver.

There's A Hair In My Dirt—A Worm's Story by Gary Larson

Nature's complex balancing act as seen through Larson's goofy genius cartoon eye. A read-and-laugh aloud underground classic.

Native Landscaping for Wildlife and People by David Tylka

Illustrated in the glorious photographic tradition of publisher Missouri Department of Conservation, this book is efficiently organized with plant types adapted to sun, shade, and moisture conditions. A great gift to introduce native plants to new fans, and a lush addition to the bookshelf of any native aficionado.

Biomimicry by Janine Benyus

This champion of nature-inspired innovation presents compelling examples of how nature pumps, filters, produces light, minimizes friction, and performs other significant functions more efficiently than we humans. From the super-strength of spider silk to the aerodynamics of boxfish, inspiration abounds for ways to transform the devastating "heat, beat, and treat" mentality of human-only design thinking.

Web

Grist—Doom and Gloom with a Sense of Humour www.grist.org

Daily, weekly, and monthly e-updates will send you environmental news to your inbox, compiled from credible international news sources. Founder and editor Chip Giller was recently honored with the prestigious Heinz Foundation Award for delivering independent environmental content free of charge via the web, and other new-media channels, reporting on everything from climate change to green celebrity news, and showing how the environment intersects with critical issues like poverty, health care, and economic growth.

Got a Green Reading recommendation?

Email your review to greenresources@mobot.org

SAGE

AT A YOUNG AGE

TEENS HELP CULTIVATE AWARENESS AT THE GARDEN

by Jennifer Wolff, Manager of Interpretation

photo by Jane Frank

SAGE volunteers engaged visitors in the Doris I. Schnuck Children's Garden through engaging nature-themed educational activities.

"OUR DAUGHTER HAD SO MUCH FUN WITH SAMANTHA, LEARNING ABOUT TREES. SHE EVEN PLAYED DRESS-UP WITH THE TREE COSTUME!"

Calling all teens! Don a headlamp and venture into a Missouri cave. Hunt for fossils and insects. Learn about natural water filters, pollination, and the native Osage people. SAGE volunteers in the Doris I. Schnuck Children's Garden lead all these activities and more each summer.

SAGE stands for Students as Garden Educators. It is a service and learning program for high school students, ages 14 to 18. SAGE volunteers work with Garden staff to plant seeds of knowledge and inspire our youngest visitors to enjoy nature. Participants learn good science, improve public speaking skills, and have fun working outdoors in the beautiful Garden with other high school students from throughout the region.

SAGE volunteers help children learn about trees, but in an active way, donning tree costumes and using puppet games. Kids have "bushels of fun" learning about plants as food, past and present, in the General Store as SAGE volunteers make dough or preserves and play "Can You Guess this Scent?" with herbs and spices. SAGE volunteers help children grow a new appreciation for flowers through dress-up as pollinators and enjoying a pollination "picnic." In the Osage camp, SAGE volunteers teach about the many ways this Native American tribe used plants with weaving activities and native games. These are just a few of the many engaging activities that the SAGE volunteers help offer each season in the Children's Garden.

FROM THE VOLUNTEERS:

"The best thing about the SAGE program is that I learned about the environment. I knew a lot about the environment, but now I know even more."

"I liked working with the children and helping them through the activities. A lot of them seemed really interested and I was glad that I got to share that knowledge with them."

SAGE grew substantially this past year and included students from: Christian Brothers College, Clayton, Eureka, Fox, Hixson Middle School, John Burroughs, Ladue Horton Watkins, Lafayette Senior, Maplewood Richmond Heights, Mascoutah, McKinley, Mehlville, Metro, Oakville, Rockwood South, Rockwood Summit, Rosati-Kain, Roxana, SIU East St. Louis Charter School, St. Louis University, Villa Duchesne, and Webster Groves High Schools.

CALLING ALL HIGH SCHOOL STUDENTS

Do you love plants and nature? Are you looking for a fun way to spend your summer outdoors? Do you need to complete service hours or gain positive experiences to put on your college application? The SAGE program begins accepting applications for summer 2010 in December. Visit the Garden's website www.mobot.org and go to "Education" and "For teachers and students."

WHAT TO DO IN YOUR GARDEN NOW…

clip and save

photo by Charles Schmidt

December

all month

- ☐ On cold nights, move house-plants back from icy windows to prevent chilling injury.
- ☐ Overwintering geraniums like bright light, cool temperatures, and soils on the dry side.
- ☐ Water houseplants with tepid water; cold may shock them.
- ☐ Be sure the root zones of azaleas and rhododendrons are mulched. Oak leaves, shredded oak bark, or pine needles are preferred.

week 1

- ☐ Clean and oil garden tools before storing for winter.
- ☐ Winterize power equipment before storing. Change the oil and lubricate moving parts. Either drain fuel systems or mix a gas stabilizing additive into the tank.
- ☐ Apply mulches to bulbs, perennials, and other small plants once the ground freezes.
- ☐ If you feed rabbits corn or alfalfa, they may leave fruit tree bark unharmed.
- ☐ Hairspray helps keep seed heads and dried flowers intact on wreaths and arrangements.

week 2

- ☐ Holiday poinsettia basics: sun for at least half the day, keep away from drafts, registers, and radiators. Night temperatures in 50s or low 60s; days at 70 degrees. The soil should dry only slightly between thorough waterings. Discard the drainage. Be sure to punch holes in decorative foil wraps to prevent soggy soil conditions.
- ☐ Trim hollies and decorate with the prunings. Only female trees bear the berries. If fruits are desired, a male tree must be growing nearby for pollination.
- ☐ Christmas trees hold needles longer if you make a clean, fresh cut at the base and keep the trunk standing in water.

photo by Brent Johnston

January

all month

- ☐ Brush off heavy snow, but allow ice to melt naturally from plants. Prune damaged limbs promptly to prevent bark from tearing. Avoid salt or ice melters as these may injure plants; instead use sand, bird seed, sawdust, or vermiculite to gain traction on icy paths.
- ☐ Keep records of your garden. Inventory the plants and note past performance.
- ☐ Check fruit trees for evidence of rodent injury to bark. Use baits or traps where necessary.
- ☐ Avoid walking on frozen lawns as this may injure turf grasses.
- ☐ Some plants are sensitive to flouride and chlorine in tap water. Water containers should stand overnight to allow these gases to dissipate and warm to room temperature.
- ☐ Wash the dust off of houseplant leaves to allow the leaves to gather light more efficiently.
- ☐ Fluffy, white mealy bugs on houseplants are easily killed by touching them with a cotton swab of rubbing alcohol.
- ☐ Insecticidal soap sprays can be safely applied to most houseplants for the control of many insect pests.
- ☐ Scrub heavily encrusted clay pots with a steel wool pad after they have soaked overnight in a solution consisting of 1 gallon of water and one cup each of white vinegar and bleach.

weeks 1–2

- ☐ Quarantine new plants to be sure they do not harbor any insect pests.
- ☐ If you didn't get your bulbs planted before the ground froze, plant them immediately in individual pots and place the pots in flats. Set them outside where it is cold and bury under thick blankets of leaves. Transplant them into the garden when weather permits.

week 3

- ☐ Set Amaryllis plants in a bright sunny window to allow the leaves to develop fully. Remove spent flowers. Keep the soil moist, not soggy. Fertilize occasionally with a general purpose houseplant formulation.

week 4

- ☐ Try sprouting a test sample of leftover seeds before ordering new seeds for spring. (Roll up 10 seeds in a damp paper towel. Keep moist and warm. Check for germination in a week. If fewer than half sprout, order fresh seed.)

photo by Brian Mueller

February

all month

☐ Don't work garden soils if they are wet. Squeeze a handful of soil to form a ball. If it is sticky, allow the soil to dry further.

☐ Start onion seed indoors now.

☐ Inspect fruit trees for tent caterpillar egg masses. Eggs appear as dark brown or grey collars that encircle small twigs. Destroy by pruning or scratching off with your thumbnail.

☐ Water evergreens if the soil is dry and unfrozen.

☐ Take geranium cuttings now.

☐ To avoid injury to lawns, keep foot traffic to a minimum when soils are wet or frozen.

☐ Repot any rootbound houseplants before vigorous growth occurs. Choose a new container that is only 1–2 inches larger in diameter.

week 1

☐ Branches of pussy willow, quince, crabapple, forsythia, pear, and flowering cherry may be forced indoors. Place cut stems in a vase of water and change the water every four days.

week 2

☐ Start seeds of slow-growing annuals like verbena, salvia petunias, geraniums, coleus, and impatiens indoors.

☐ Maple sugaring time is here! Freezing nights and mild days make the sap flow.

☐ Fertilize houseplants only if they show signs of new growth.

week 3

☐ Sow celery and celeriac seeds indoors now.

☐ Prune fruit trees. Peaches and nectarines should be pruned just before they bloom. When pruning diseased branches, sterilize tools with a germicide spray between cuts. Dry your tools and rub lightly with oil to prevent rusting.

☐ Sow seeds of larkspur, sweet peas, shirley poppies, and snapdragons outdoors. For best bloom, these plants must sprout and begin growth well before warm weather arrives.

☐ Apply appropriate sprays for the control of lawn weeds.

week 4

☐ Sow seeds of broccoli, brussels sprouts, cauliflower, and cabbage indoors for transplanting into the garden this spring. If soil conditions allow, take a chance sowing peas, lettuce, spinach, and radish.

☐ Fertilize established fruit trees once frost leaves the ground. Use about ½ lb. of 12-12-12 per tree, per year of age, up to a maximum of 10 lbs. per tree. Broadcast fertilizers over the root zone staying at least a foot from the tree trunk.

☐ Dormant sprays can be applied to ornamental trees and shrubs on a mild day while temperatures are above freezing.

☐ Start tuberous begonias indoors now. "Nonstop" varieties perform well in this climate.

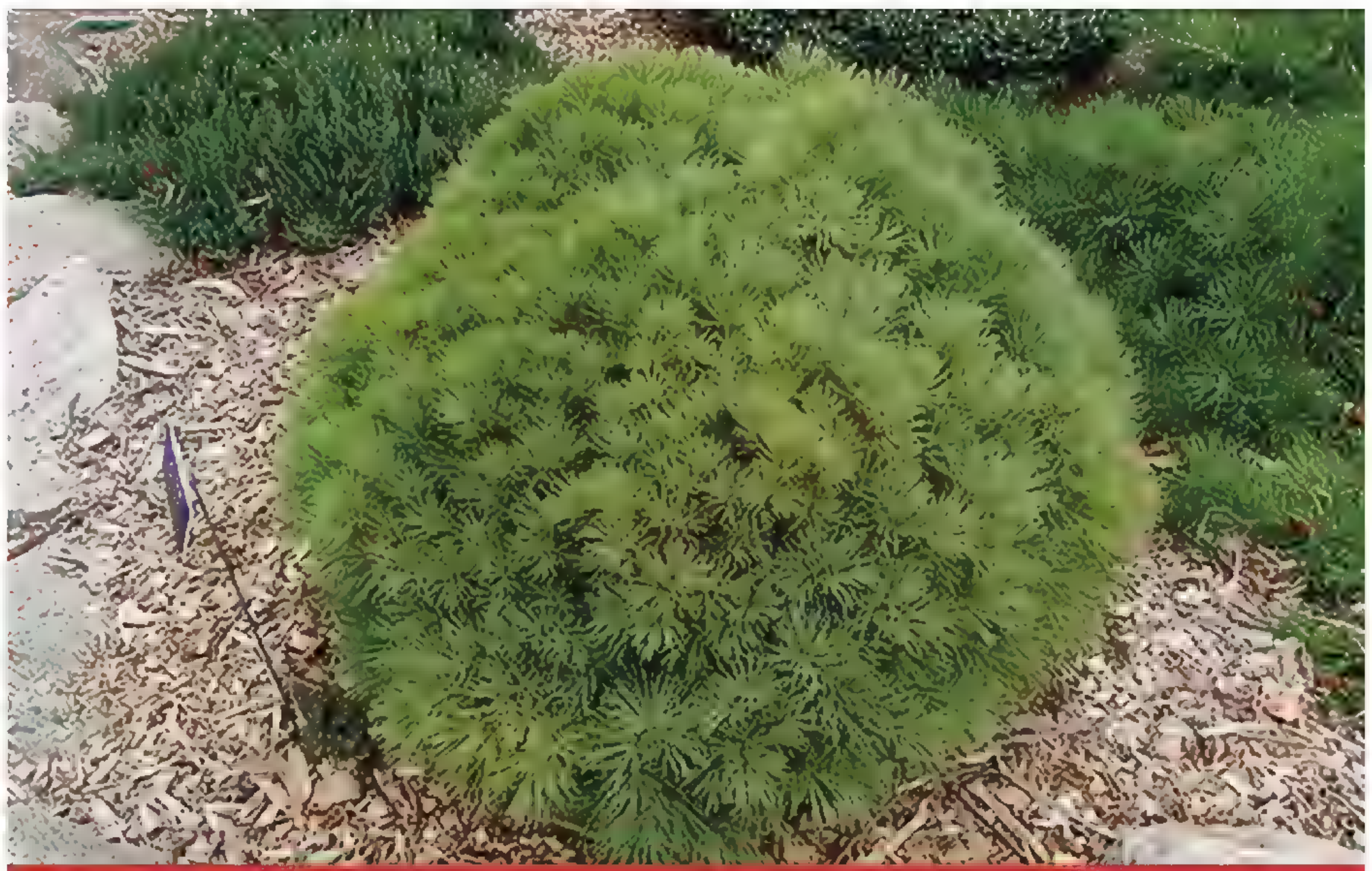
photo by Tammy Palmier

Featured Plant of Merit®

Eastern White Pine
Pinus strobus 'Sea Urchin'

Over the first ten years, this slow-growing miniature white pine forms a flattened globe of blue-green needles to only 2-3 feet tall, somewhat resembling in appearance the spiny hedgehog shape of a sea urchin. It is a colorful and interesting addition to small areas of the landscape including rock gardens, Japanese gardens, border fronts, and foundations.

Plants of Merit® is a program of the Missouri Botanical Garden. Plants are selected by regional horticulture experts for outstanding qualities and dependable performance in the lower Midwest. View all current selections at www.plantsofmerit.org.

For additional information on plant care and gardening:

- *visit the William T. Kemper Center for Home Gardening.*
- *call the Horticultural Answer Service, Monday through Friday, 9 a.m. to noon, at (314) 577-5143.*
- *check out the Gardening section at www.mobot.org.*

Member Plant Societies

Plant societies are the place to profess your horticultural devotion. Groups exist for fans of flowers from African violets to roses, and for specific garden types such as rock or water gardens. For the latest contact information on the Garden's plant society partners, visit www.mobot.org/plantsocieties.

Come enjoy the camellias in bloom in the Linnean House this winter.

gift of the
GARDEN

Searching for that perfect gift for someone special this holiday season? Give the gift of the Garden! There are so many ways to make a special, customized present, while enjoying that warm, fuzzy feeling of benefiting the Garden at the same time.

Purchase a Garden membership, commemorative brick, paver, or tribute in honor of your loved one. Just complete the enclosed form and mail it to Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299.

For more details on these and other giving programs, call (314) 577-5118, or visit the Garden's website: www.mobot.org and click on "Membership" or "Donate."

Give the Gift of the Garden

A Garden membership makes a great gift, and now is the time to give it. The Garden will offer a 20 percent discount on Garden, Garden Senior, Garden Plus, and Family-level memberships from Wednesday, December 2, to Sunday, December 6. Memberships must be purchased on site at the Membership Services Desk. Find out more at www.mobot.org, or call (314) 577-5118.

Receive a
20% discount
on gift memberships
December 2-6.

Discounts apply to on-site sales only.

photo by Kat Douglas

photo by JJ Lane

Bricks at the Missouri Botanical Garden

Bricks—Own a piece of the Garden!

Honor someone with the permanence of architecture. Engraved clay or cast bronze bricks are an extraordinary expression of love and respect—and a holiday gift to last a lifetime. The recipients will enjoy your special memento every time they visit the Members' Entry Court at the William T. Kemper Center for Home Gardening. Bricks are donated for all the occasions that fill our lives—holidays, birthdays, graduations, marriages, unique accomplishments, retirements, as well as final tributes. Your gift will keep the Garden's work alive and growing, as it builds a tradition of joyful memories for your family. For more information, call (314) 577-0291.

photo by Kevin Wolf

Pavers at the Butterfly House

Pavers—Own a piece of the Butterfly House!

Make your memories last a lifetime at the Sophia M. Sachs Butterfly House when you purchase an engraved paving stone in the entry court. Future visits will be even more special as you view your butterfly-shaped paving stone created exclusively for you. For more information, call (314) 577-0291.

Tributes

This season, the Garden offers an easy way for you to complete your holiday shopping. Honor family and friends through a gift in their name. A personalized acknowledgment is sent to the honoree. Donations of $25 or more are listed in the Missouri Botanical Garden *Bulletin*. For more information, call (314) 577-0805.

N2DIRT
JUL
08
Missouri
photo by Laila Wessel

Purchase your Missouri Botanical Garden license plate today!

Renew Your License Plate

Show the world you support the Garden! Garden members are eligible for a special limited-edition Missouri Botanical Garden license plate. For a contribution to the Garden of $35 for one year, $70 for two, you will receive an "emblem use authorization" statement and instructions on how to obtain your plate from the Missouri Department of Motor Vehicles. Usual fees apply. For more information, call (314) 577-0805.

FOR YOUR TAX BENEFIT...

Planned Giving Opportunities

The Garden was established through a planned gift. Henry Shaw's will made a gift to the future, a gift to perpetuate the things he loved and make available to the public "a botanical garden easily accessible, which should be forever kept up and maintained." You too can leave a legacy to the Garden through charitable gifts and estate planning. Many of the Garden's friends have chosen planned giving as a way to perpetuate their loyal support beyond their lifetimes, while realizing benefits for themselves today. For more information about the many different kinds of planned giving opportunities, contact (314) 577-9495.

Henry Shaw Fund

The Missouri Botanical Garden depends on your donations. Won't you please consider making a tax-deductible gift as part of your charitable contributions for 2009? Your gift to the Henry Shaw Fund supports the Garden's plant science research here and abroad, extends recreational and educational programs for people of all ages, and nurtures the beauty of the Garden that is enjoyed by more than 750,000 visitors annually. For information regarding the Henry Shaw Fund or to charge your gift by phone, please call (314) 577-9500.

Coming Soon to a Backyard Near You?

ARMADILLOS

Loose in St. Louis

Bet you never thought you'd see one of these bad boys in your backyard in Kirkwood! Once an icon of Texas, armadillos are spreading throughout the St. Louis region. Their habits are shy and their numbers still small, but sightings are increasing. Like other potential pests we are starting to see in the St. Louis area, milder winters due to global climate change have resulted in a larger range.

"Something's going on. These animals weren't here even five years ago," says Missouri Department of Conservation natural history biologist Michael Arduser. "While they're not very abundant here yet, down the road, they may very well be more prevalent."

Armadillos have a habit of leaping straight up in the air when startled, a trait that has resulted in their most frequent appearance as road kill along area roadways. Consequently, biologists have a very good idea of exactly where they are. Arduser reports that road kills are relatively common in St. Louis County—in South County and Kirkwood, for example. He adds that armadillos have even crossed the Missouri River into Lincoln and Warren counties.

"Little armored ones" (what their name means in Spanish) tend to be nocturnal and oblivious, intent on hunting and foraging, but people should not interact with them. Although they aren't predators, they are compact and powerful animals. In most instances, humans can often hear them long before they appear—rustling, turning leaves.

Armadillos are mostly insectivores, so they dig to eat. Grubs are one of their favorite foods. As the temperatures get colder and the insects migrate deeper into the soil, the armadillos dig bigger and deeper holes. "They have really serious claws," says Arduser. "In an hour's time, a single armadillo can really tear up a yard."

They can be trapped, but not using a standard bait trap. (No bait seems to work.) Instead, they must be funneled into a trap using drift fences. To learn more about armadillos—and how to manage them if you detect one—check out these two excellent free on-line publications. Search for:

- Missouri Department of Conservation: "Armadillos in Missouri: These Scaly, Armored Mammals are Moving Northward."
- University of Missouri Extension: "Armadillos in Missouri: Techniques to Prevent and Control Damage."

Efficiency + Diversity = Renewable Energy Strategy!

by Jean Ponzi, Green Resources Manager

EarthWays Center

3617 Grandel Square, St. Louis, MO 63108
phone (314) 577-0220 • www.earthwayscenter.org

Learn Green – Live Green

photo courtesy the Missouri Department of Conservation

photo courtesy Sage Homebuilders

Super-efficiency plus solar panels achieve "near-zero energy" status for this suburban St. Louis home.

Energy Incentives

Money-saving incentives are helping to meet our nation's energy-saving goals—with more on the way in 2010, for Missouri and Illinois. Bookmark the non-profit Database of State Incentives for Renewable Energy website (www.dsireusa.org) for current details on tax credits, tax deductions, and rebates from federal, state and local utility sources.

Contact EarthWays Center with your energy and sustainable living questions. Email greenresources@mobot.org or call (314) 577-0246.

Especially after power outages, people call the Garden's EarthWays Center Green Resources Hotline seeking to install solar panels, get off the grid, and be able to keep their households powered up, no matter what. It's a valid ambition, but perhaps an impractical path to transforming the ways we use energy.

Did you know: every dollar invested in energy efficiency can take $5 off the eventual cost of installing a renewable energy system?
In other words, a kilowatt saved is a kilowatt earned (or in fact, five). Diligent attention to lighting, weatherizing, and other basic efficiency measures are the essential first step to getting "off grid"—and will reduce monthly energy bills right away. Once you've maximized efficiency, here are some options to consider.

Solar electric (photovoltaic, or PV) systems are the focus of strong public interest, and tax credits can help you cover their costs (see sidebar). Other solar options are also well worth considering: solar thermal panels can provide hot water and supply under-floor heating systems. Health-enhancing daylight, beaming through well-sealed efficient windows or "solar tube" skylights, may be the least appreciated but best way to use solar energy—and daylight is free!

Wind power is a fast-growing renewable energy source. Consumers can purchase Renewable Energy Credits (RECs) through non-profit organizations and utility programs. These voluntary household and business investments, which typically add about 15 percent to monthly electric bills, support the development of wind production infrastructure. Over $87 million federal dollars were designated for Missouri wind projects in 2009. Watch for small-scale wind turbines, designed for use at low roof-level wind speeds, on the consumer market soon.

Ground-source, or geothermal, heating and cooling systems provide clean renewable energy that is increasingly cost-competitive with conventional equipment. It's worth calculating this option into new home or commercial building plans, especially with current federal tax credits.

So improve your existing energy systems—and plan any new ones—to eliminate energy waste, make use of locally appropriate energy sources, and integrate renewables into your energy mix in every way you can.

BUGS:

They're What's for Dinner!

by Mark Deering, Collections Manager

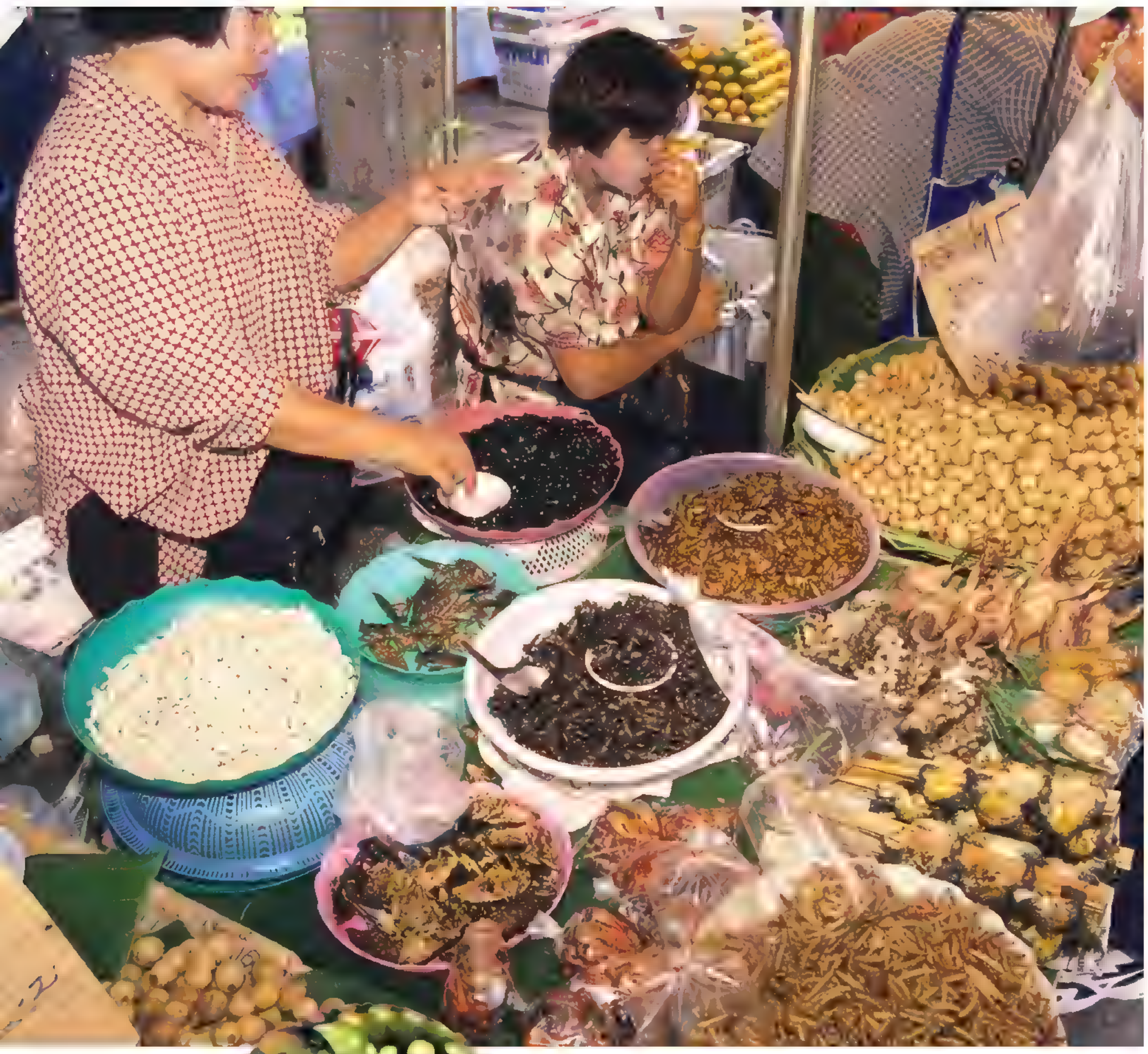

photo by Mark Deering. Stinkbug photos by Louise Docker and ?

Insects and their larvae available at the Chiang Mai market in Thailand.

The majority of the world's human population eats insects! How's that for an opening line? "Entomophagy" is the term for the practice of eating insects, and there are over a thousand species of insects commonly consumed by humans around the world. While many Americans may be a bit squeamish at the thought of eating an insect, or even finding one in their food, consuming a few is not really that unusual considering their abundance and the necessity of food for survival.

There are dozens of different insect foods at market stalls in Thailand. There is a festival celebrated in central Mexican towns called Jumil Day, where people gather, collect and cook jumiles, a type of stinkbug. The mopane worm, a caterpillar of a large *Saturniid* moth, which is collected by hand and then dried, can make up the majority of the protein in some African tribes' diets.

photo by Scott Woodbury

Insects by weight are relatively high in protein, even more so when dried. Some are fairly high in fat and most possess large amounts of vitamins and minerals. So why aren't we eating them? The hesitation is driven primarily by cultural differences. There are some foods consumed by Americans—such as crawfish, raw oysters, crabs, lobster, shrimp, squid, octopus and other invertebrates—that other cultures find disgusting and reject as food. Cheese, for example, is considered spoiled milk by many Asian cultures.

Of course we are eating insects, incidentally. Food products often contain insects or pieces of insects. The Food and Drug Administration provides a guideline as to how many insect parts may be allowed in natural and processed foods. This is primarily an "aesthetic" restriction in most cases, as insect parts do not harm the average consumer (the exception being people with specific allergies). Here are a few examples of levels of insect contaminants allowed before the FDA will take action:

Cinnamon, ground	400 insect fragments per 50g
Canned mushrooms	20 maggots per 100g
Canned sweet corn	2–3 mm larvae or insect skins
Chocolate	60 insect fragments per 100g
Cornmeal	25 insect fragments per 50g
Peanut Butter	30 insect fragments per 100g
Tomato paste and other sauces	30 eggs or 2 maggots per 100g
Wheat flour	75 insect fragments per 100g

Learn all about these fascinating practices and the creatures you may already be eating on your next visit to the Sophia M. Sachs Butterfly House!

Butterfly House

15193 Olive Blvd., Chesterfield, MO 63017
(636) 530-0076 • www.butterflyhouse.org

Winter Beauty in the Whitmire Wildflower Garden

A winter ice storm coats switchgrass and Illinois bundleflower in the Whitmire Wildflower Garden.

By Cindy Gilberg, Native Plant Horticulturist

On a gently sloping hill at Shaw Nature Reserve is a gem of a garden dedicated to education and use of native plants in the landscape. The five-acre Whitmire Wildflower Garden has an extensive collection of native small flowering trees and shrubs and grand specimens of oak, hickory, and persimmon. Many visitors come in spring to see wildflowers in bloom or to walk in the cool shade in summer. Yet winter is a time when one can truly get the "lay of the land." Interesting tree branches appear, views open up, and visitors may see the landscape in an entirely new way.

As autumn gives way to winter in the garden, the colors of summer turn to rich earth tones. Chocolate-brown seed heads and ebony stems and seed pods (bush clover and false indigo) rustle in the wind against a backdrop of tawny grasses. Colonies of ferns are marked by ruddy and dark brown fertile fronds that persist through the cold months.

What seems to be a quiet scene can, in fact, offer more opportunity to see wildlife. Mixed flocks of sparrows and juncos enjoy foraging on any remaining grass seed – sparrows on standing seed heads while juncos eat the seed that falls to the ground below. Bright spots of red berries on dogwood, prairie rose, and deciduous holly vie for the attention of overwintering bluebirds, sparrows, and finches. Watch for mockingbirds as they defiantly defend their claim on holly berries.

A winter hike when there is snow on the ground reveals all sorts of activity that usually goes unnoticed. Here and there are trails of footprints, from tiny mice to fox and rabbit tracks. Occasionally seen are the wing imprints in the snow made by hawks and owls as they swoop down to capture small rodents. Take time while hiking in the crisp clear winter air to stop and listen. The woods and fields are filled with sounds—the tapping of woodpeckers, a gentle symphony of waxwings calling, and even the subtle rustling of the wind in dried foliage.

Native Plant School "Native Small Flowering Trees & Shrubs" NEW!

Three part series: January 14, April 15, and October 14, 1 to 4 p.m.

Discover native small trees and shrubs for home landscaping that attract wildlife, provide fragrance or screening, and have year-round beauty. Informal and in-depth, with questions encouraged and walks in the garden. Call to register: (636) 451-3512 ext. 0. For more information: www.shawnature.org.

SHAW NATURE RESERVE

Hwy. 100 & 44 (exit 253), Gray Summit, MO 63039
phone: (636) 451-3512 • www.shawnature.org

photo by Kat Douglas

Tributes

July through September 2009

A tribute gift to the Garden is a wonderful way to honor family and friends. Tributes of $25 and up are listed in the *Bulletin*. If you have questions regarding giving opportunities at the Garden, please call (314) 577-0805. You can also make a tribute gift online at our website, www.mobot.org.

In Honor of

Mr. and Mrs. Gerald L. Adlon
Mrs. Patricia Kromer

Mr. and Mrs. H. Charles Allen
Mr. and Mrs. Hilray A. Buntin

Bennett and Andrew
Mr. and Mrs. Leonard Adreon

Mrs. Kimmy Brauer
Mrs. Nancy M. Murray

Mr. and Mrs. Justin Brockman
Mr. and Mrs. Rick Halpern

Jerry and Rita Brooks
Ms. Dion M. Scherr

Mr. and Mrs. Louis D. Cohen
Mrs. Ellen Ross

Ms. Hazel L. Cox
Your Lemp nieces and nephews

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Neil and Sally DeForest

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Leaving a bequest to the Garden creates a legacy that will benefit others for generations to come. If you have already included the Garden in your estate plans, we hope that you will share this information with us. We would like to express our gratitude and welcome you into the Heritage Society. Of course, your wishes for anonymity are respected. Please call (314) 577-9495 for further information, or visit our website at www.mobot.org. Click on Donate, then Planned Giving.

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photo by Brian Mueller

Members' Entry Court

Bricks dedicated at the Garden, July through September 2009.

Engraved clay bricks and signature bronze bricks are a wonderful way to commemorate any special occasion, as well as final memorials. For additional information regarding the Garden's brick program, please contact the Institutional Advancement Office at (314) 577-0291 or visit www.mobot.org.

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Sophia M. Sachs Butterfly House Tributes & Pavers

To learn more about these opportunities, call (314) 577-0291 or visit www.butterflyhouse.org.

Tributes and Pavers dedicated at the Sophia M. Sachs Butterfly House, July through September 2009.

Tributes

In Memory of

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Lorraine Carroll
Ms. Helen VanDerhyden

Thelma May Muskin
Mr. Arthur Muskin

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Ooh la la Orchids!

Brighten your winter days with a visit to the orchid show. Then bring the beauty home with an orchid from the Garden Gate Shop! You'll find everything you need: display pots, decorative mulches, gardening implements, plant food—and the best variety of orchids in St. Louis!

photo by Kathryn Lebbon

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shop GREEN : shop VINTAGE!

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AROUND
THE CORNER

ANTIQUES • HOME & GARDEN FURNISHINGS

For all your holiday shopping, you'll find beautiful items at reasonable prices at the Little Shop Around the Corner. Holiday sale now through December 31. Open Tuesday through Saturday, 10 a.m. to 4 p.m. (*No donations accepted in December. Closed the month of January.*)

4744 Castleman Ave., St. Louis, MO 63110, (314) 577-0891
All sales benefit the Missouri Botanical Garden.

December Events

photo by Josh Monken

Christmas Carols in the Garden

Saturday–Sunday, December 12–13, 1 to 5 p.m., Garden grounds ☺
Santa in his sleigh, musicians and carolers, and roasting chestnuts—it's all part of this celebration of the sounds of the season. Five choirs, a brass ensemble, a jazz combo, and a harpist perform sacred and secular songs throughout Garden grounds. Mulled cider, hot chocolate, and cookies will be available for purchase, and the Garden Gate Shop will be open for holiday shopping. Don't miss this year's special display of gingerbread houses. Regular Garden admission rates apply (free for members).

Visit www.mobot.org for the latest information.

Gardenland Express ☺

through January 3
One of St. Louis's most beloved holiday traditions, the Garden's annual holiday flower and train show, this year commemorating the Garden's 150th anniversary. Admission: $5 ages 3 and up. Garden members are admitted free.

✿ **Members-only Evening** | *Wednesday, December 2, 5 to 8 p.m.*

Victorian Christmas ☺

Open Tuesday through Saturday, 10 a.m. to 4 pm; Sunday 1 to 4 p.m.
Tower Grove House is decked out with wreaths, garlands, floral centerpieces, greenery, and a holiday tree. Young visitors can be on the lookout for old-fashioned toys hidden throughout the house. Join us for storytelling on Saturdays at 11 a.m.

Wreath Auction

Through January 3: place your silent auction bids on beautiful wreaths by the area's finest floral designers, including *Botanicals Design Studio, Schnuck Markets, Inc., Kirkwood Florist, Ladue Florist, Magnolia's, Marianne Brown Floral Design, Mary Tuttle's Floral and Gifts, Rolling Ridge Nursery and Garden Center, St. Louis Herb Society, Summerfield Landscaping and Garden Gifts, Troy Flower and Gift Shop*, and *Twigs and Moss*.

Naturally Beautiful

At the Kemper Center for Home Gardening, don't miss our 15-foot balsam fir tree naturally decorated to celebrate the Garden's 150th anniversary with "gourdaments" and gourd birdhouses. Vote for your favorite! All decorated gourds are sold by silent auction bidding. *(Closed Jan. 1).*

Breakfast with Santa ✿ ☺

Saturday, December 5, 8 to 10:30 a.m., Sassafras
Members can visit with Santa as he makes his yearly stop at the Garden. Bring a pair of mittens or a child's hat to donate to charity. $16 per person; children ages two and under free. Seating is limited. Advance reservations required: (314) 577-9570 or www.mobot.org/membership. For more information, call (314) 577-5154.

Chanukah: Festival of Lights

Sunday, December 6, noon to 4 p.m.
A traditional Jewish holiday celebration that includes festive Israeli music and dance, a menorah-lighting ceremony, and Chanukah merchandise provided by local vendors and the Garden Gate Shop.

Holiday Concert ✿

Saturday, December 12, 11 a.m., Shoenberg Theater
Join the annual holiday sing-along with the St. Louis Metro Singers. Free for Garden members and their guests. Seating is first-come, first-served.

Kwanzaa: First Fruits ☺

Tuesday, December 30, noon to 4 p.m.
Kwanzaa is a Swahili term that means "first fruits." The celebration of this contemporary African-American holiday includes a ceremony, storytelling, craft and jewelry displays, and authentic African drumming and musical performances.

☺ = fun for families
✿ = members' event

Note: The Little Shop does not accept donations during the month of December.

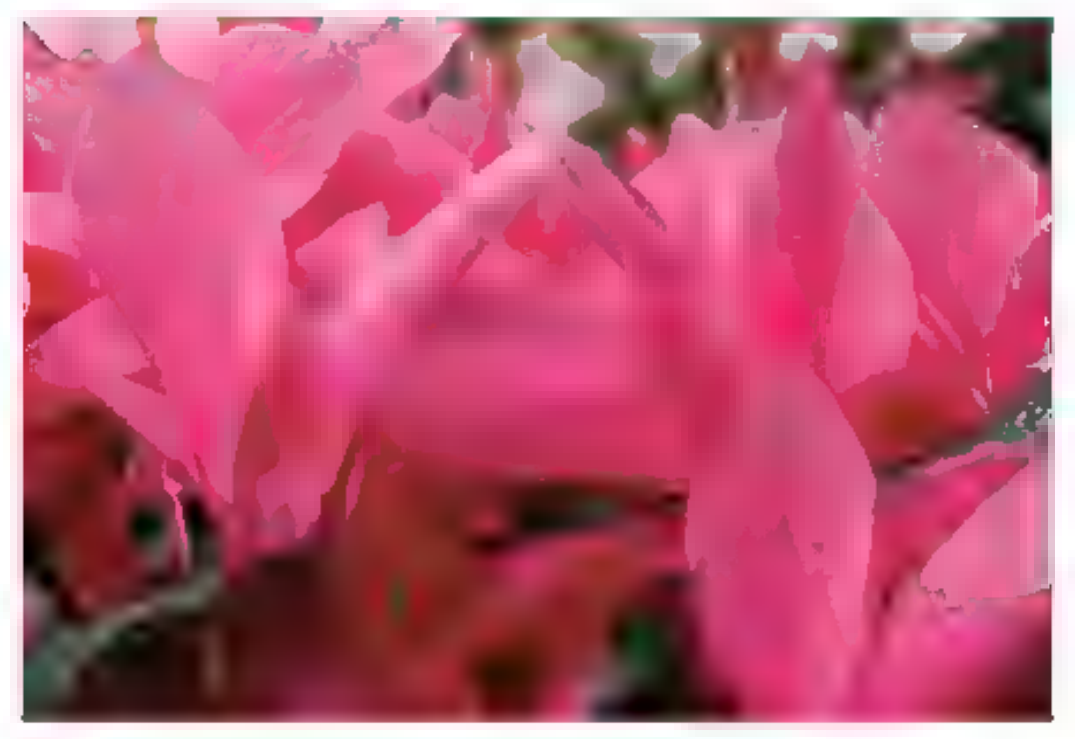
December
2009

average temperature: low 25.8°, high 42.0°
average monthly precipitation: 2.86 in.

What's in bloom?

download the podcast at www.gardeninghelp.org

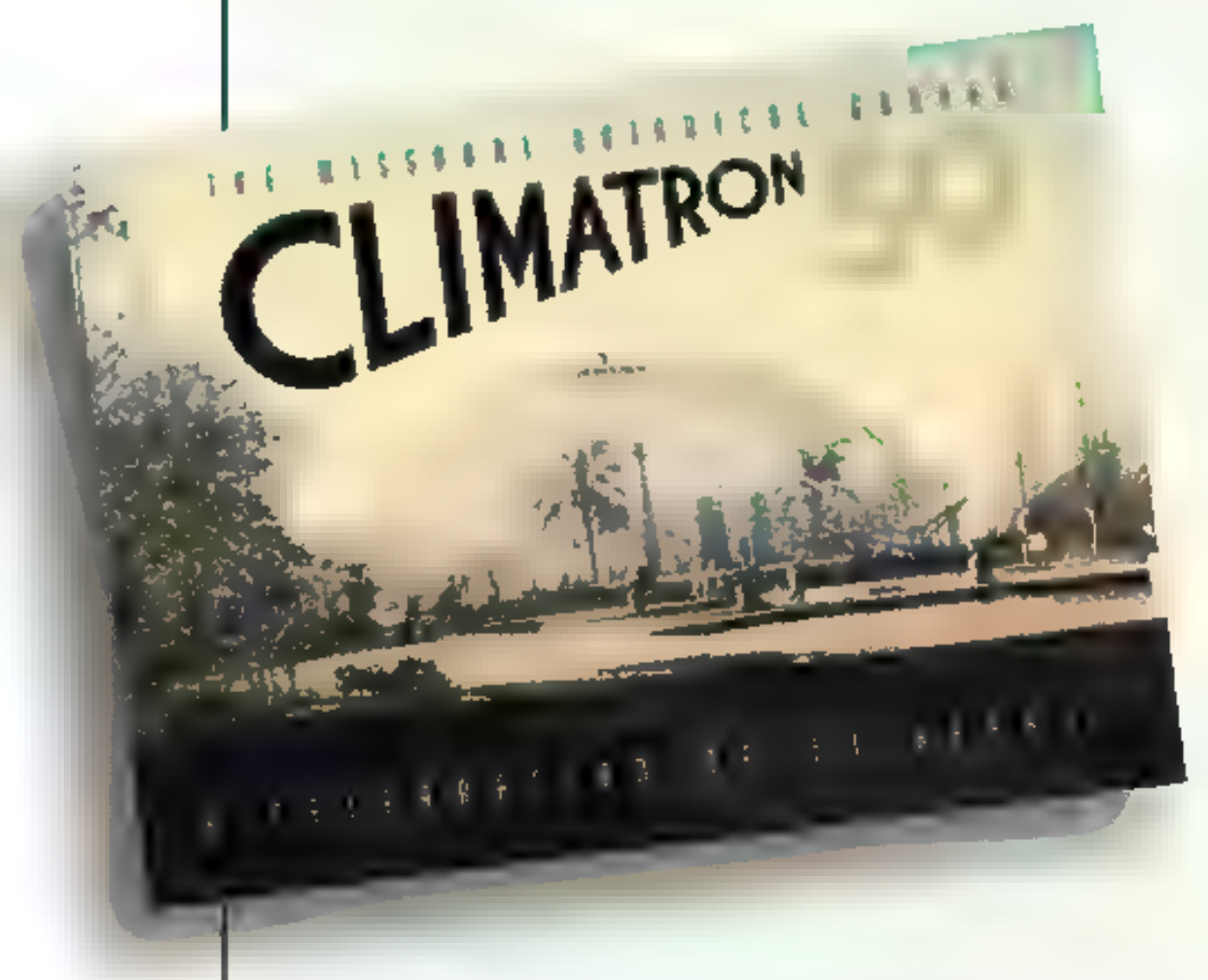
poinsettia


cyclamen

ornamental grass

Christmas cactus

holly

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
 **Climatron Book Signing** *Sunday, December 6, noon to 2 p.m.* Author and Washington University professor Eric Mumford signs copies of the new Climatron book. GGS.		01 **Closed for the Season:** Children's Garden Tram operation Terrace Café at Kemper Center for Home Gardening	02 Members' Event: Gardenland Evening, 5-8 p.m. Members' 20% off sale, GGS and LS Gift Membership sale	03 Members' 20% off sale, GGS and LS Gift Membership sale	04 Members' 20% off sale, GGS and LS Gift Membership sale	05 Members' Event: Breakfast with Santa. 8:30 to 10 a.m. $☎ Don Kurz signs *Missouri's Natural Wonders*, 11 a.m. to 3 p.m. GGS Members' 20% off sale, GGS and LS Gift Membership sale
06 Eric Mumford signs *Climatron*, 12 to 2 p.m. GGS Chanukah: Festival of Lights, 12 to 4 p.m. Classic99's From the Garden—LIVE! Bach Society. 12 p.m. ST Members' 20% off sale, GGS and LS Gift Membership sale	07	08	09	10	11	12 CHANUKAH Christmas Carols in the Garden, 1 to 5 p.m. Members' Holiday Concert. 11 a.m. St. Louis Herb Society signs their new cookbook, 11 a.m. and Jennifer Ward signs *The Busy Tree*, 12 to 2 p.m. GGS
13 Christmas Carols in the Garden, 1 to 5 p.m.	14	15	16	17	18	19 Public Tour Day. EWC
20 Public Tour Day. EWC	21	22	23	24 Garden closes at 4 p.m.	25 CHRISTMAS DAY Garden is closed.	26 KWANZAA Mark Abbott signs *Tower Grove*, 12 to 2 p.m. GGS
27	28	29	30 Kwanzaa: Festival of the First Fruits, 12 to 4 p.m.	31 Garden closes at 4 p.m.	**Gift of the Garden** Just in time for the holidays, purchase Garden, Garden Plus, and Family level memberships at a 20% discount during the Garden Gate Shop holiday sale, December 2-6. *Discounts apply to on-site sales only.*	

photos by Kat Douglas, Brian Mueller, Heather Marie Osborn, and Erin Whitson.

January Events

Visit www.mobot.org for the latest information.

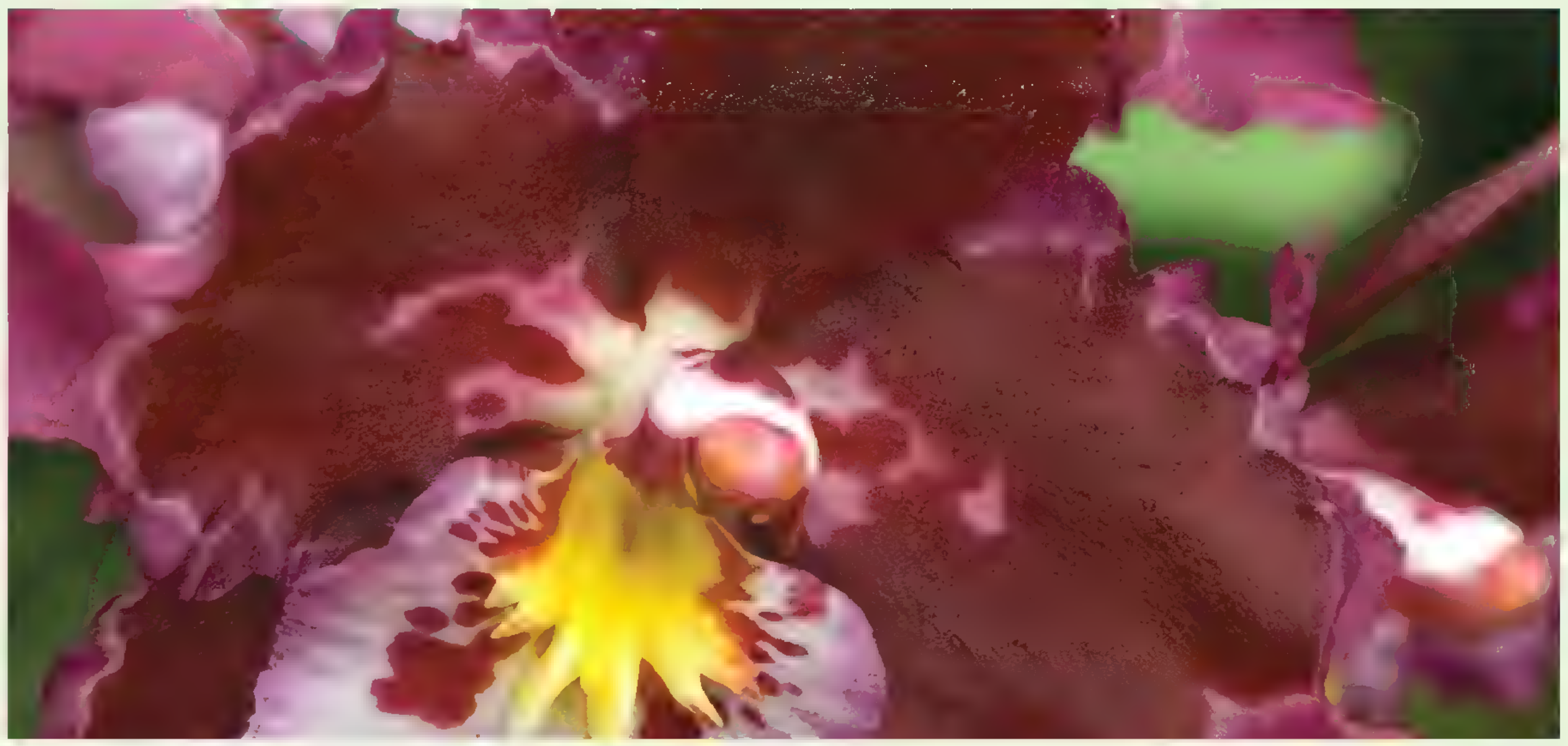


photo by Brent Johnston

Orchid Show 2010

January 30 through March 28 | admission: $5 (free for members) ☺

Experience the color, beauty, and fragrance of orchids in bloom in the middle of winter. The Garden's annual orchid show features a rotation of over 800 orchids from the Garden's world-class collection in a lush garden of sweeping French-inspired design. Saunter past streetlamps along a curved *rue du jardin* to a quaint faux flower shop and tiny French bistro beneath the shadow of the Eiffel Tower. *C'est romantique.* Admission: $5 ages 3 and up. Garden members are admitted free.

Use your cell phone to access the free audio tour and you'll hear intriguing stories about orchid lore and history and learn how to care for your own plants (call is free, but minutes apply). You can also download a podcast of the audio tour to your mp3 player ahead of time by visiting the Garden's website, www.mobot.org.

Members' Evening | *Friday, January 29, 5 to 8 p.m.* ✿

Don't miss this magical, members-only evening viewing of the orchid show with musical entertainment, cash bar, and discount shopping in the Garden Gate Shop. Sassafras will be serving specials. Reservations are not required.

☺ = fun for families
✿ = members' event

Members' Day: ✿ History of the Climatron®

Thursday, January 21, 10 a.m., Shoenberg Theater

THE MISSOURI BOTANICAL GARDEN
CLIMATRON 50

Join Eric Mumford, Washington University professor and author of *Climatron®: A Celebration of 50 Years*, as he tells the rich history of the Climatron. Lecture will be followed by tours of the geodesic dome led by Climatron Curator, Deborah Lalumondier.

Eating Lower on the Food Chain

Tuesday, January 26, 6:30 to 8 p.m., Kemper Center

Learn more about the recent *New York Times* magazine cover story! Join a vegetarian environmentalist and a professional chef for dinner and discussion on the impact of eating lower on the food chain. Perfect for the "veggie-curious"! $40. Registration required; call (314) 577-5140 and press 8. For a complete list of over 175 fall/winter classes at the Garden's family of attractions, and to register online, visit www.mobot.org/classes.

Hot, Hot, Hot! ☺

Saturday–Sunday, January 30–31, 11 a.m. to 2 p.m.

Shake off winter's chill during two days of family fun with a tropical theme! Enjoy live music, games and crafts for ages two to eight at the Sophia M. Sachs Butterfly House. 11 a.m. to 2 p.m. Garden members are admitted free.

Power of Plants ☺

Through January 31

Calling all kids! The Garden would like your help to identify the amazing Power of Plants. Pick a plant that helps people and tell everyone why your plant deserves our thanks in a creative two- or three-dimensional work of art. If your entry is chosen by our panel of judges, you could win $1,000! Visit www.mobot.org/power for complete contest information. Entries must be received by 4 p.m. on Sunday, January 31. *The 2009–2010 Power of Plants Contest is sponsored by the Monsanto Fund.*

Van the "Cool" Bean

Think Warm Thoughts This Winter!

Did you know the Garden offers year-round programs to nurture the minds and bodies for all ages? From ecological explorations and nature study to artistic creations and dino investigations, unique learning opportunities await you and your family. Class registration begins in February, so be on the look out for program information at www.mobot.org/classes. Garden members enjoy discounts. Call (314) 577-5140 for more information.

January
2010

average temperature: low 21.2°, high 37.9°
average monthly precipitation: 2.14 in.

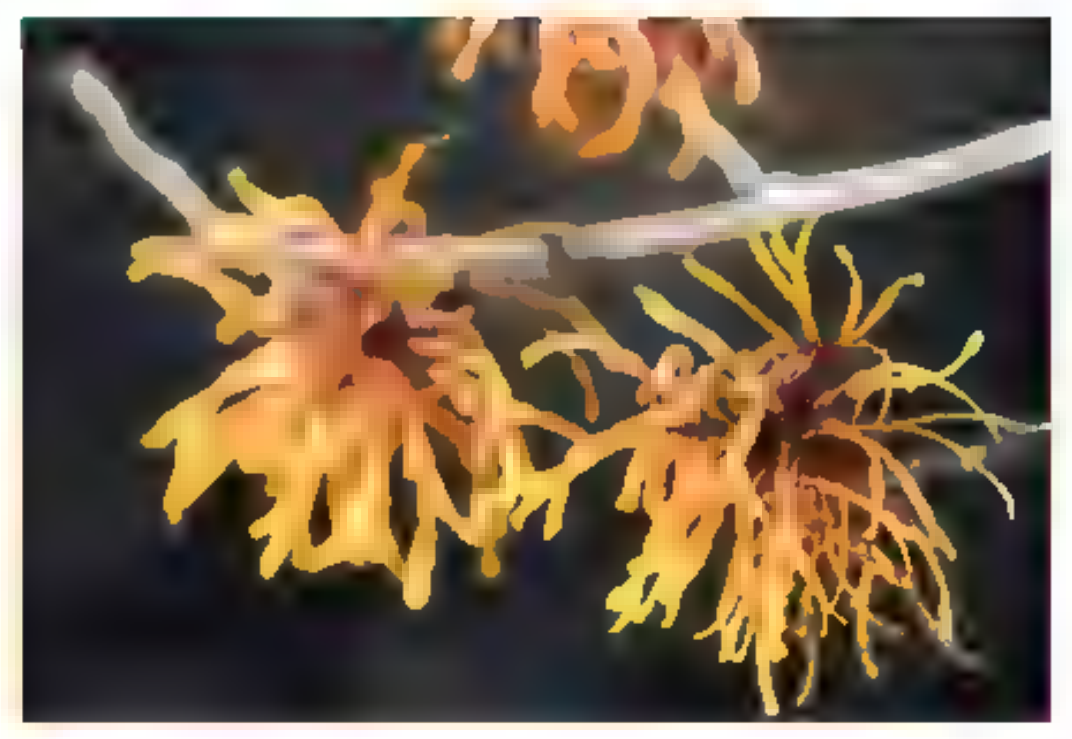
What's in bloom?

download the podcast at www.gardeninghelp.org

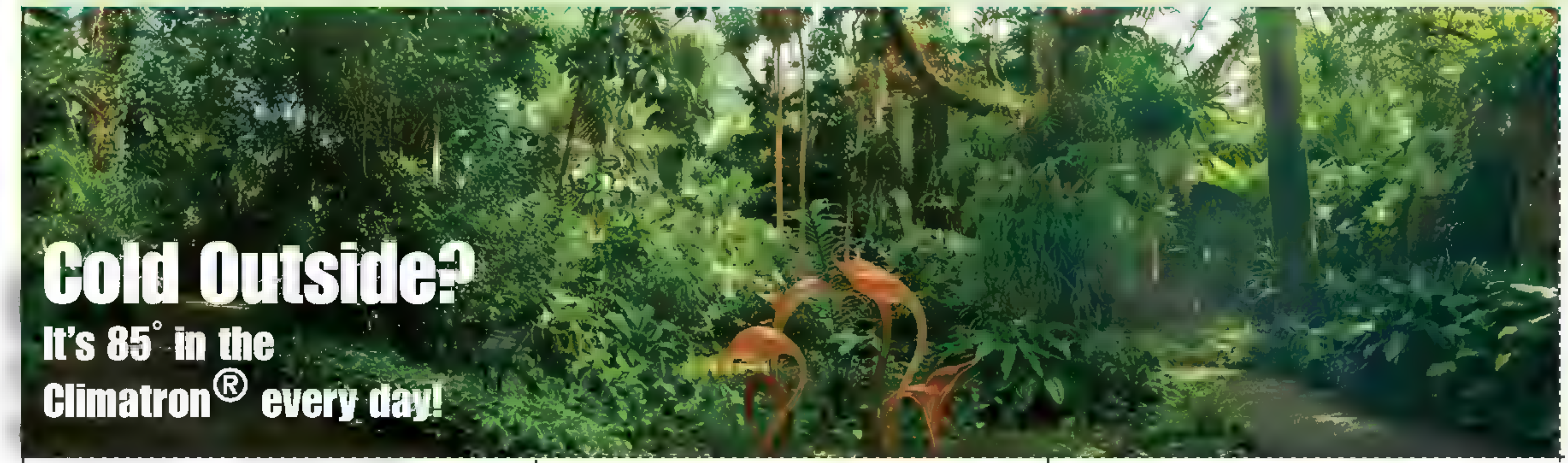
tropicals in the Climatron

snowdrops

winter heath


ozark witchhazel

camellia



Closed for the Season | *January through March*
Please note these attractions are not available during the winter months. Seasonal operations will resume on April 1.

- Doris I. Schnuck Children's Garden
- Narrated tram tours
- Terrace Café at Kemper Center for Home Gardening
- Little Shop Around the Corner (*closed in January*)
- Tower Grove House

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					01 NEW YEAR'S DAY	02
03 Last day of Gardenland Express.	04	05	06	07	08 Gregory Basco exhibit: photos of Costa Rica Camp Bugaloo: Bugs. BH $☎	09
10 Camp Bugaloo: Bugs. BH $☎	11 Garden Gate Shop closed for inventory.	12 Garden Gate Shop closed for inventory.	13 Garden Gate Shop closed for inventory.	14 Native Plant School: Small Trees and Shrubs. SNR. $☎ Garden Gate Shop closed for inventory.	15 Garden Gate Shop closed for inventory.	16 Great Green Adventures: Winter Color Walk. 10:30 a.m., 1:30 p.m. $ Public Tour Day, EWC
17 Public Tour Day, EWC	18	19 MARTIN LUTHER KING, JR. DAY Garden Gate Shop closed for inventory.	20 Garden Gate Shop closed for inventory.	21 ✿ Members' Day: History of Climatron, 10 a.m. Garden Gate Shop closed for inventory.	22 Garden Gate Shop closed for inventory.	23
24	25	26 Eating Lower on the Food Chain, 6:30 p.m. $☎	27	28	29 ✿ Members' Preview Orchid Show, 5 to 8 p.m.	30 Hot, Hot, Hot, 11 a.m. to 2 p.m., BH
31 Hot, Hot, Hot, 11 a.m. to 2 p.m., BH Deadline to enter Power of Plants contest						

photos by Brian Mueller, Mary Lou Olson, Christine Seibert, John Smelser, Chris Starbuck, and Paul Straatmann.

February Events

photo by Heather Marie Osborn

Backyard Bird Festival

Saturday, February 6, 7:30 a.m. to 3 p.m. ☺

Bird watchers of all ages can flock to the Garden for the fifth annual Backyard Bird Festival. Bundle up and bring the binoculars for a day filled with guided birding walks, live exhibits, identification tips, and informative classes for beginners to advanced birders. Classes are $10 ($8 for Garden members). Guided bird walks are $5 ($3 for Garden members). Visit www.mobot.org/birding/ for details and registration.

Visit www.mobot.org for the latest information.

Valentine Dinner Dance ✿

Saturday, February 13, 6:30 to 10 p.m.

Enjoy a gourmet dinner, stroll through the Orchid Show, visit the camellias in bloom in the Linnean House, and dance the night away with your special someone. Cash bar available. Tickets are $70 per person. For reservations, call (314) 577-9570 or visit www.mobot.org/membership.

Celebrate the Gospel

Sunday, February 14, 3 p.m.,
Shoenberg Theater

Celebrate Black History month with a heart-felt expression of African-American culture: gospel singing. As a special Valentine's Day program, vocalist Mardra Thomas and pianist Reginald Thomas return with their ensemble to present a "Bouquet of Love." Seating is first-come, first-served.

Great Green Adventures ☺

Third Saturday of each month,
10:30 a.m. or 1:30 p.m.

Families are invited to explore a special part of the Garden with us each month. Meet at the Children's Garden Ticket Fort for your hour-long adventure. Participation is first-come, first-served. Activities are designed for ages 6–12, but younger siblings may also attend. One adult may accompany up to three children. Cost: $3 per child, but free for Garden members. On February 20, enjoy the "Sweet Smells of Indoor Gardens."

Young Friends' Trivia Night—Garden Style ✿

Saturday, February 20, doors at 6 p.m.

Join the Young Friends of the Garden for the second annual Trivia Night—Garden Style; a night of good food, fun, and general trivia. Light buffet dinner provided. Cash bar. Please no outside food or drink. Seating is limited. Advance registration required. $300 for a table of 10. Call (314) 577-9532 for reservations.

Gardening Blitz

Saturday–Sunday, February 27 & 28

A full weekend of expert gardening advice and resources to get you started for spring. You pick the program: select from our most popular full-length gardening and art classes. Register for one or several. Fees vary for individual classes. Advance registration required; www.mobot.org/classes. Garden members receive a discount!

Member Discount at COCA ✿☺

Saturday, February 27, 5 p.m.

See the Tony-award nominated *A Year with Frog and Toad*, sure to delight children and their parents. Garden members receive a special discounted ticket rate of $15 (normally $18 and $22) for this performance time. To make reservations, call Dianne Dunning-Gill at COCA at (314) 725-1834 ext. 207, or email ddunninggill@cocastl.org.

☺ = fun for families
✿ = members' event

February
2010

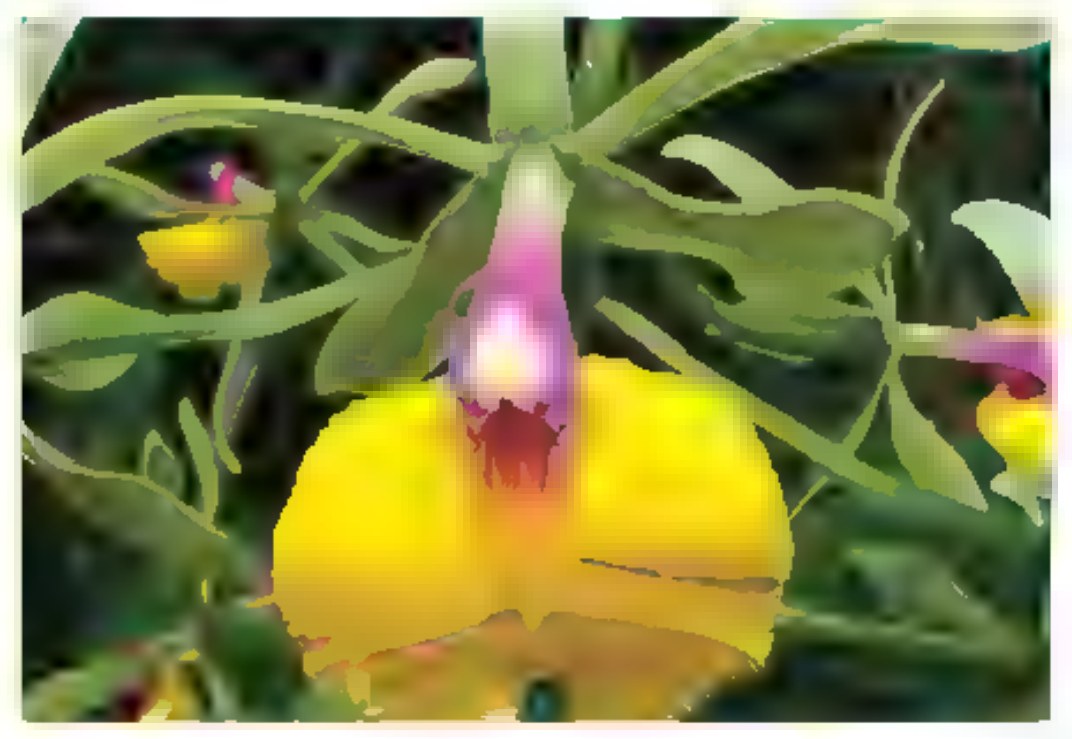
average temperature: low 26.5°, high 44.3°
average monthly precipitation: 2.28 in.

What's in bloom?

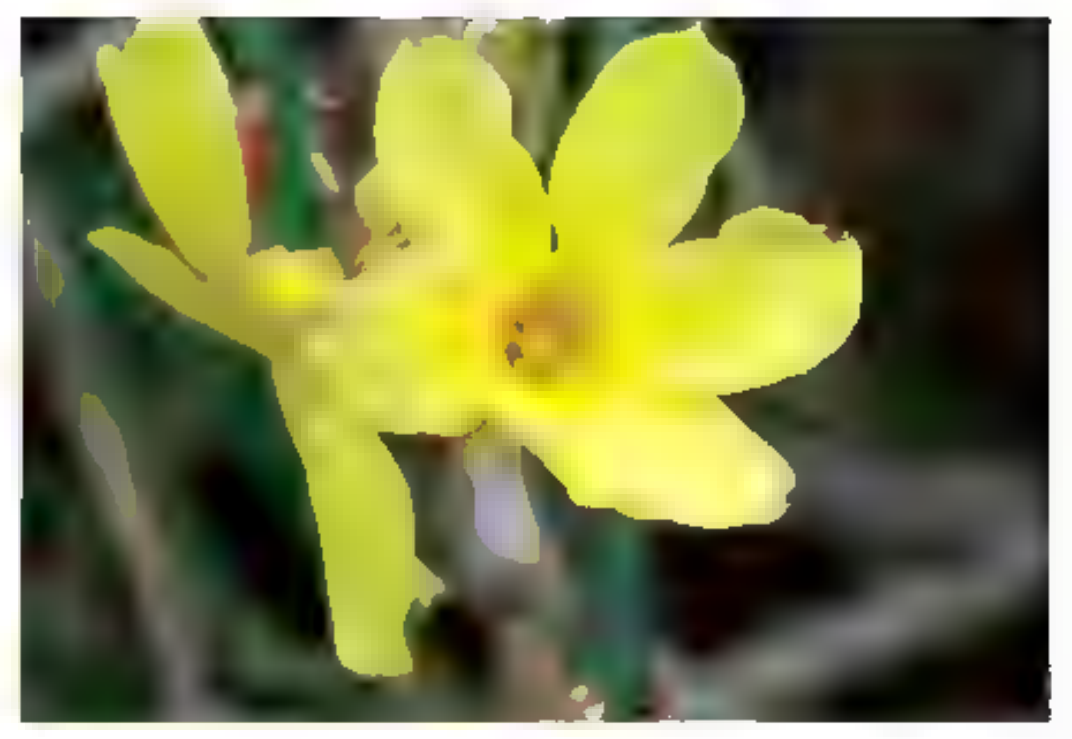
download the podcast at www.gardeninghelp.org

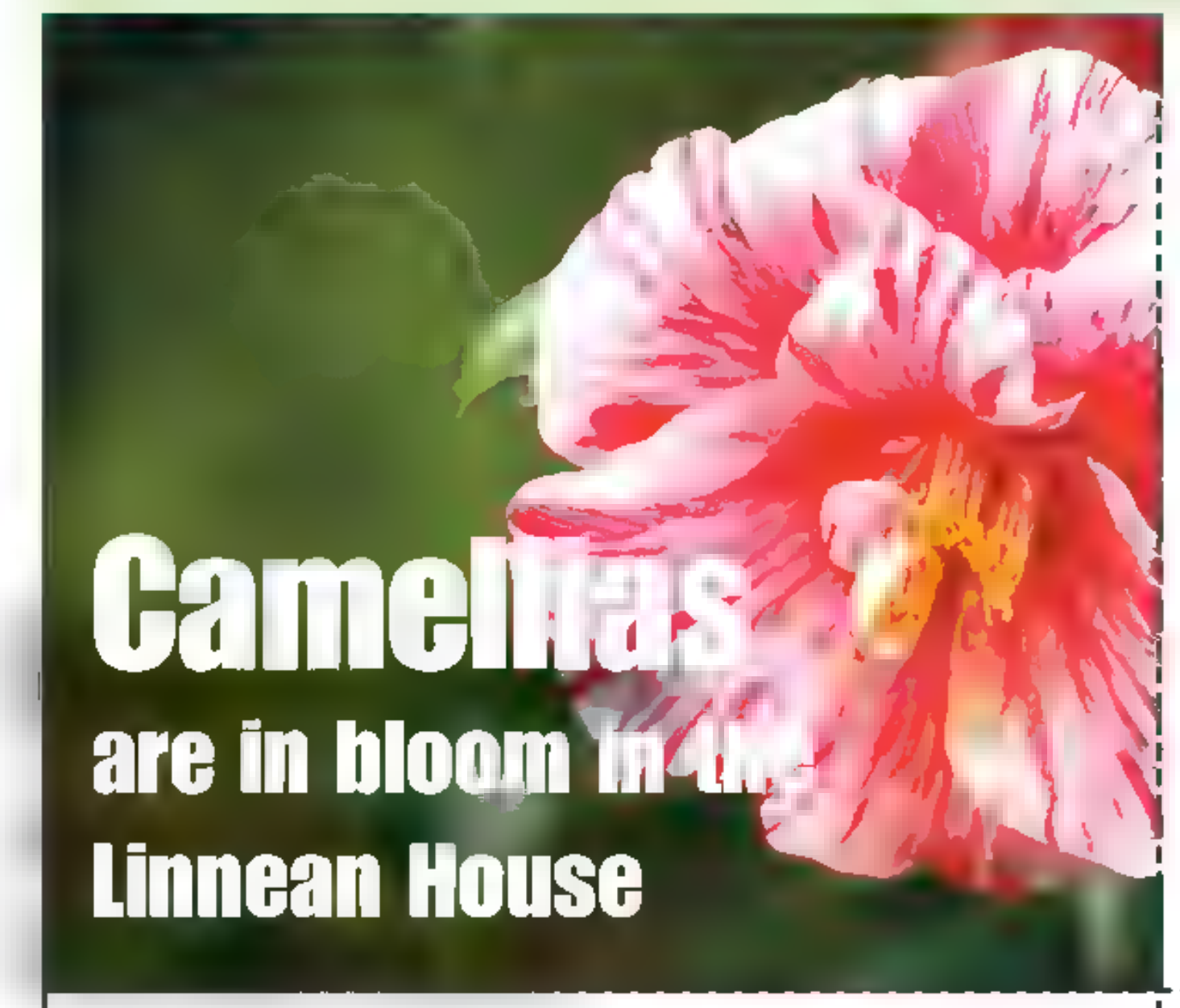
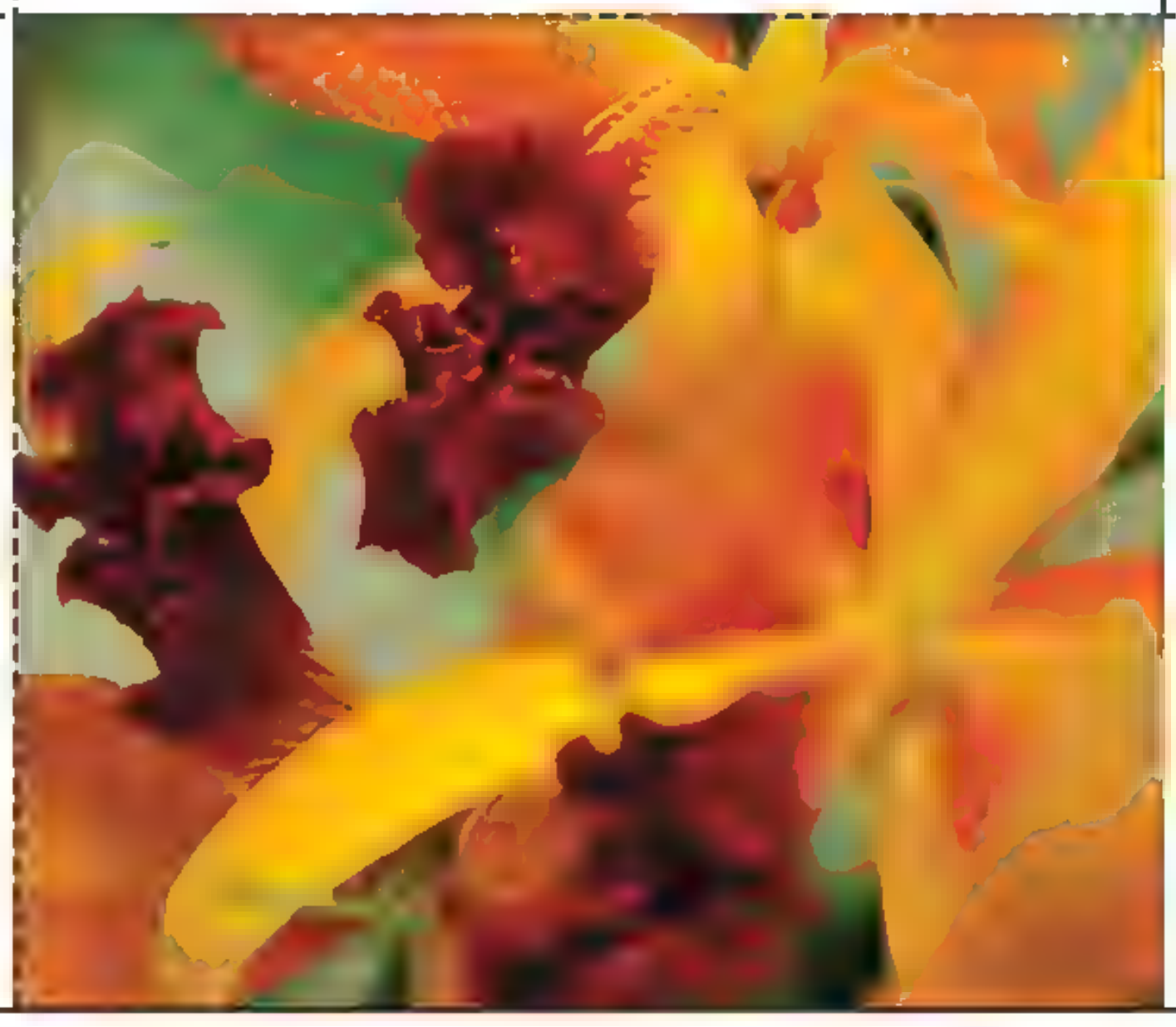
chenille plant

hellebore


orchid

powder puff


winter jasmine

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
 Camellias are in bloom in the Linnean House	01	02 GROUNDHOG DAY ■ Butterfly House closed for annual maintenance.	03 ■ Butterfly House closed for annual maintenance.	04 ■ Butterfly House closed for annual maintenance.	05 ■ Butterfly House closed for annual maintenance.	06 ■ Backyard Bird Festival. $
07	08	09	10	11 ■ Native Plant School: Landscaping Planning and Design. SNR $☎	12 ■ Silver Cat Jewelry Trunk Show. GGS. ■ Camp Bugaloo: Blossoms. BH $☎	13 ✿ Members' Valentine Dinner Dance, 6:30 to 10 p.m. $ ■ Silver Cat Jewelry Trunk Show. GGS. ■ Valentine's Night Hike and Desserts, SNR $☎
14 ST. VALENTINE'S DAY CHINESE NEW YEAR ✿ Members' Valentine Sale: 20% off, 1 to 4 p.m. GGS ● Celebrate the Gospel ■ Silver Cat Jewelry Trunk Show. GGS. ■ Camp Bugaloo. BH $☎	15 PRESIDENTS' DAY *Washington and Lincoln's birthdays observed*	16	17 ASH WEDNESDAY	18	19	20 ✿ Young Friends' Trivia Night—Garden Style, 6 p.m. ● Great Green Adventures: Sweet Smells of Indoor Gardens. 10:30 a.m., 1:30 p.m. $ ■ Public tour day, EWC
21 ■ Public tour day, EWC	22	23	24	25	26	27 ■ Sugar, Spiced, and Everything Iced ■ *A Year with Frog and Toad.* COCA. $☎ ■ Gardening Blitz. $☎
28 ■ Sugar, Spiced, and Everything Iced ■ Gardening Blitz. $☎		**Orchid Show ooh-la-la!** *January 30–March 28.* Paris-inspired show of fragrant tropical orchids. $5 (free for Garden members)				

KEY *(All events take place at the Garden unless otherwise noted.)*

CA = Cohen Amphitheater
CL = Climatron lawn
GGS = Garden Gate Shop in RC
JE = Jordan Education Wing in RC
KC = Kemper Center for Home Gardening
SP = Spink Pavilion
RC = Ridgway Visitor Center
SS = Sassafras, the Garden's café in RC
ST = Shoenberg Theater in RC

Off-site locations:
BH = Butterfly House, (636) 530-0076
EWC = EarthWays Center, (314) 577-0220
LS = Little Shop Around the Corner, (314) 577-0891
SNR = Shaw Nature Reserve, (636) 451-3512

✿ Members-only event
☎ Reservations required, please see event details or call (314) 577-9400.
$ Fee

photos by JJ Lane, Jennifer Meinhardt, Brian Mueller, Mary Lou Olson, Heather Marie Osborn, and Charles Schmidt.

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MISSOURI BOTANICAL GARDEN
P.O. Box 299 • St. Louis, MO 63166–0299

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photo by Kat Douglas

Phaius tankervilleae from the Missouri Botanical Garden collection

ORCHID SHOW

January 30 through March 28
admission: $5 (free for members)

Ooh la la! Experience the color, beauty, and fragrance of orchids in bloom in the middle of winter. This year's orchid show features a lush garden of French-inspired design. Members are admitted free. Special evening viewing for members only Friday, January 29.

Missouri
Botanical
Garden

bulletin

Spring 2010 / Vol. 98, No. 2
www.mobot.org

photo by Kristi Foster

President's Comment

Spring arrives many times at the Garden. Spring creeps into the Climatron® in January, when the powderpuff and glorybower bloom. In February, spring takes over the Temperate House, a Mediterranean *primavera* complete with fragrant daphnes and sweet box. But outside, in our climate zone 6a, St. Louis welcomes spring in March. When the snowdrops shed white tears over Shaw's grave, the show is about to begin.

This year, visitors can appreciate over 100 varieties of tulips, 72 types of daffodils, dozens of peonies (see page 18), among other spring beauties like crocus, hyacinth, and a reprise of last year's popular entrance display: over 1,000 alliums, their tall stalks topped by 6-inch globes of purple flowers.

We welcome Arnold Donald as the new Chairman of the Board of Trustees, and new Vice-Chairs Steve Maritz and Cheryl Morley. Arnold, Steve, and Cheryl succeed outgoing Chair Nick Reding and Vice-Chair Carolyn Losos. Thank you, Nick and Carolyn, for your service. We welcome new trustee Dan Burkhardt as well.

With the turning of the season, we mourn the passing of three pillars of St. Louis philanthropy: Lu Morse, Des Lee, and our longest serving trustee, Warren Shapleigh. All three served on the Garden's Board, and their dedication will be greatly missed.

In May, we present DinoQuest at the Garden and the companion exhibit, Jurassic Bugs, at the Sophia M. Sachs Butterfly House. These exhibitions provide a perfect introduction to the history of life on Earth, extinction, and survival. At the Garden, there is also the excitement of experiencing these lifelike creatures in such an awe-inspiring natural setting, the Climatron (see page 9).

Angiosperms are flowering plants, the most diverse plant group on the planet, with an estimated 350,000 species living in all but the most extreme environments. Garden scientists are at the forefront of discovering, identifying, and classifying the world's plant life (see page 14), and our work is the foundation for conservation. How we humans manage our resources will have a major effect on the future of life, and there are many lessons to be learned from the past.

See you on the grounds!

Peter H. Raven

Dr. Peter H. Raven, *President*

> *To discover and share knowledge about plants and their environment in order to preserve and enrich life.*
>
> *– mission of the Missouri Botanical Garden*

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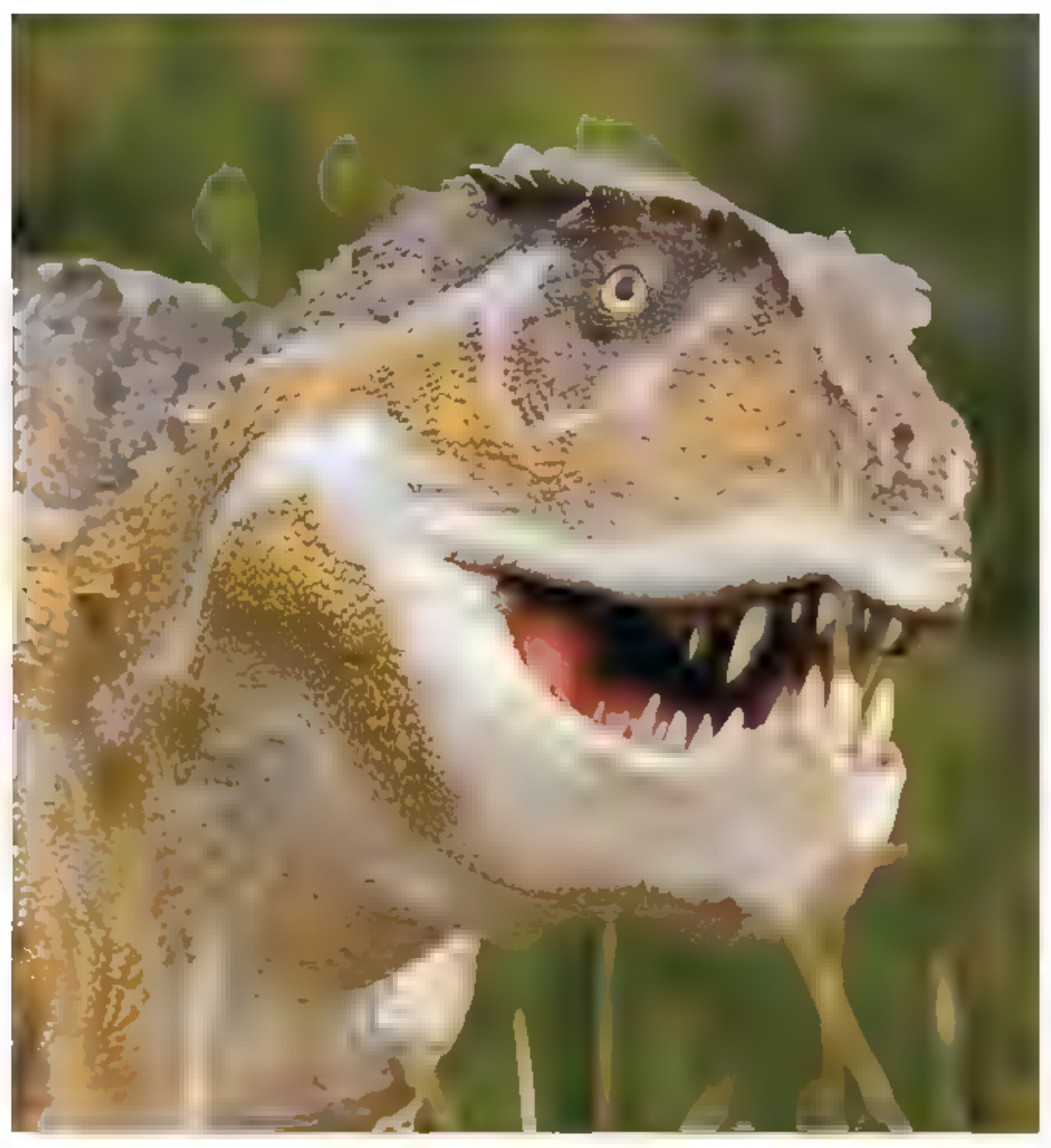
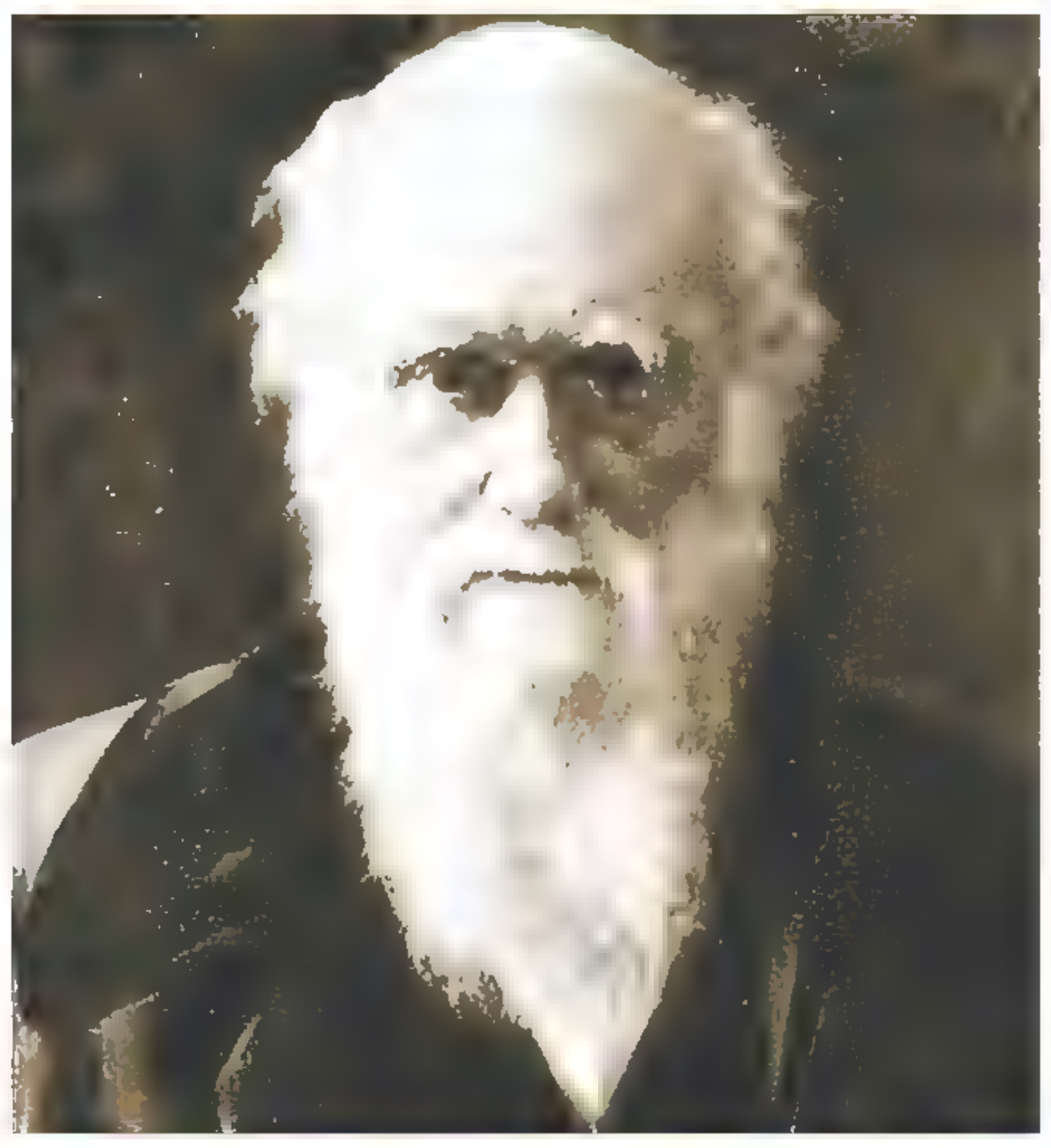


9–13

DinoQuest

- Dinosaurs and the Environment
- A Day in the Life of an Indoor Rain Forest



14–15

The Tree of Life

Of Darwin, Phylogeny, Biology, and the Work of Garden Scientists

18–19

A Passion for Peonies

Flowering Plants Woo Humans and Ants

On the Cover:

Climatron with magnolias
Photographer: Jennifer Meinhardt

Credits

Editor: Elizabeth McNulty
Designer: Ellen Flesch

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In Memoriam

Warren McKinley Shapleigh | *1920–2009*
Warren McKinley Shapleigh, a long-time friend of the Garden and retired president of Ralston Purina Co., died November 1, 2009. He was 89.

The Garden's longest serving trustee, Mr. Shapleigh joined the Board in 1958. He was chairman of the committee that selected Dr. Peter H. Raven as Garden president in 1971 and was instrumental in fund-raising campaigns during years of significant expansion and development. His generosity made possible the Shapleigh Memorial Fountain, the Kercheval Fountain, a viewing area in the Margaret Grigg Nanjing Friendship Chinese Garden, and the land on which the Monsanto Center was built.

As president of Ralston Purina Co., Mr. Shapleigh was a central figure in the company's transformation from a feed business to a major manufacturer of foods for pets and people. After retiring, he became president of the Spencer T. and Ann W. Olin Foundation, which annually gave many millions of dollars to higher education, medical education, research, health services, and cultural and civic programs.

Lucius B. Morse III | *1938–2009*
Lucius B. Morse III, a businessman and member of the Garden Board of Trustees, died November 18, 2009. He was 71.

Mr. Morse joined the Garden's board in 1986. He was passionate about preserving the natural world and served as an advisory board member for Shaw Nature Reserve. He also worked on the Garden's behalf to reach the broader metropolitan community, including Illinois.

Mr. Morse was chairman and CEO of LBM Enterprises for 20 years. He also was a founding member of the Missouri State Park Foundation, a non-profit organization that works to preserve state parks, enhance park projects funded by the state, or cover costs of projects which do not receive state funds.

E. Desmond "Des" Lee | *1917–2010*
E. Desmond "Des" Lee, extraordinary philanthropist and inspiration behind multi-institution collaborations designed to strengthen education, died January 12, 2010. He was 92.

Mr. Lee made charitable gifts totaling more than $70 million in his lifetime. He gave a $2.5 million gift in 1994 to the Garden and partner organizations to establish science education programs for inner-city youth. In 1995, Mr. Lee and his wife made possible the opening of the Garden's E. Desmond and Mary Ann Lee Family Educational Center at Castleman Avenue and Shaw Boulevard. They received the Garden's Henry Shaw Medal that year. Mr. Lee was an emeritus member of the Garden's Board of Trustees from 1996 to the time of his death.

Mr. Lee and college classmate Jim Rowan founded a business in 1939 manufacturing and selling pant creasers and hangers. After the men returned from service in World War II, Mr. Lee bought the business from Mr. Rowan and grew it dramatically in subsequent decades. He sold the company in 1993.

photo by Kathryn Lebbon

Sheila Voss

New VP of Education

The Garden is pleased to announce **Sheila Voss** as Vice President for Education. Sheila was the Director of Education and Conservation for Busch Entertainment Corporation. She also served as the Executive Director for the SeaWorld & Busch Gardens Conservation Fund.

"As members, my family and I have frequented the Garden throughout the seasons," says Voss. "Behind the natural beauty, however, is the Garden's work to save at-risk species and the ecosystems in which they live. I am thrilled to help strengthen and build upon the Garden's already strong commitment to education."

Voss has a Master's degree in Environmental Sciences from Southern Illinois University, Edwardsville. She currently lives in Edwardsville with her husband Steve, a research biologist at Monsanto, and their children William (6) and Kate (4).

Former Vice President of Education, **Deborah Chollet Frank**, will focus exclusively on her work as Vice President of Sustainability. A LEED™ accredited professional, Frank has a Master's degree in Engineering and Policy from Washington University and was formerly the head of the Garden's EarthWays Center.

photo by Andrea Nickrent

Arnold Donald, Cheryl Morley, former Chair Nicholas Reding, former Vice Chair Carolyn Losos, Steve Maritz. Not pictured: Dan Burkhardt.

New Trustee Appointments

On December 9, Arnold W. Donald was elected to the position of Chairman of the Missouri Botanical Garden's Board of Trustees. W. Stephen Maritz and Cheryl P. Morley will serve as Vice Chairs. Daniel A. Burkhardt was elected a Trustee.

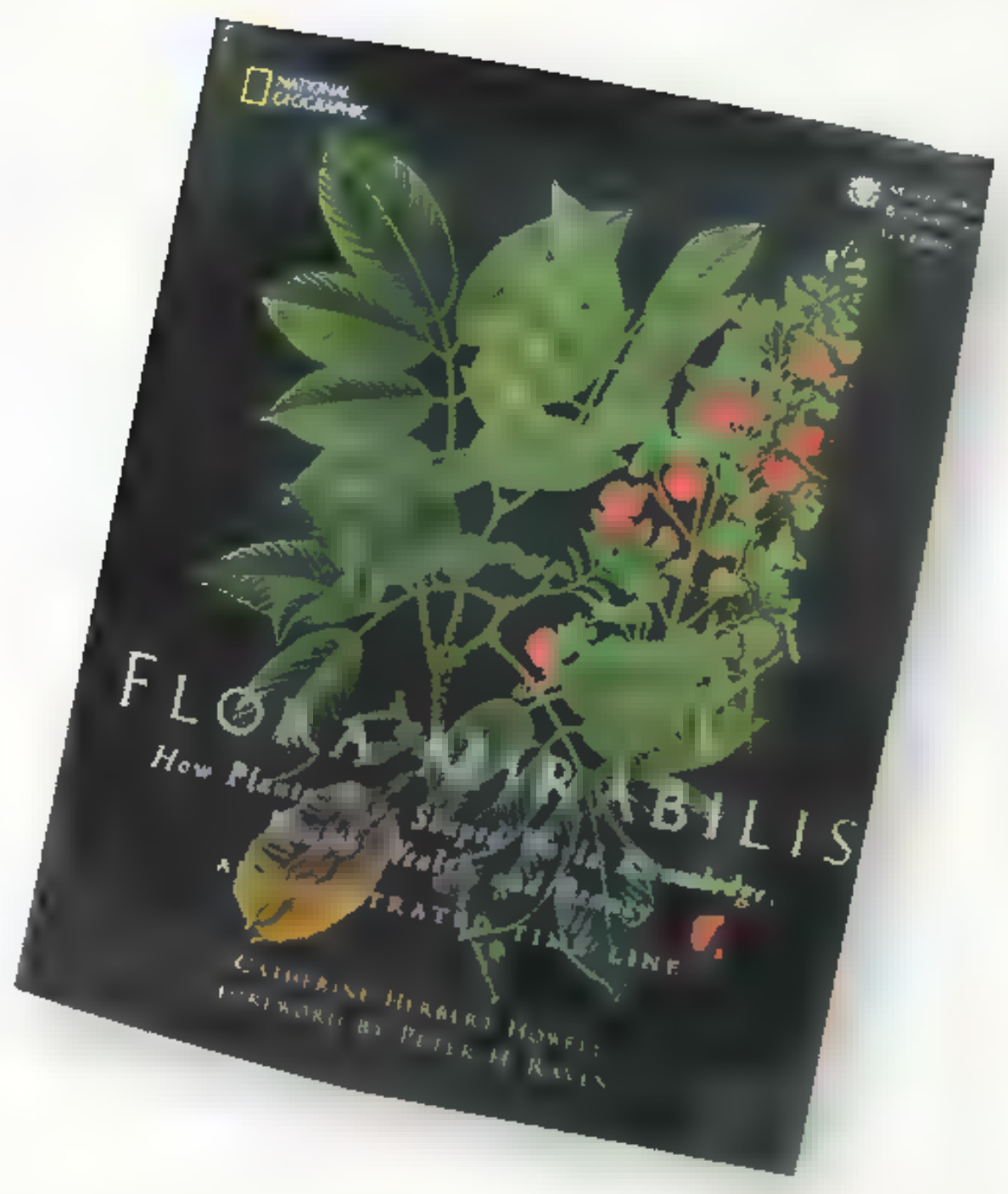
Arnold Donald, former president and CEO of the Juvenile Diabetes Research Foundation, has been a member of the Board since 2001 and was elected Chairman in 2009. Previously, Donald was chairman of Merisant Company and a senior executive at Monsanto Company. A native of New Orleans, Donald holds a B.A. degree from Carleton College, a B.S. degree in mechanical engineering from Washington University, and an MBA from the University of Chicago.

W. Stephen (Steve) Maritz joined the Garden's Board in 2007. As chairman of the board and CEO of Maritz Inc., Steve Maritz represents the fourth generation of his family to lead the company. A graduate of Princeton University, Maritz is a member of Civic Progress. He is active in the community, serving on the boards of Laclede Group, the St. Louis Regional Chamber and Growth Association, the John M. Olin School of Business, and the Variety Club, among others.

Cheryl P. Morley joined the Garden's Board in 2005. Morley retired from her role as senior vice president of Corporate Strategy at Monsanto Company in 2009. A graduate of the University of Arizona, Morley is chairman of the Board of Directors of the Nidus Center and serves on the advisory boards of St. Joseph's Hospital/SSM Healthcare and St. Louis University's Business Women in Leadership program.

Daniel A. Burkhardt has been elected to the Garden's Board of Trustees. Burkhardt retired from Edward Jones in 2005 to devote more time to Oakwood Medical Investors, a venture capital firm focusing on mid-stage medical and pharmaceutical investment, and to the vineyard he owns in Marthasville, MO. He serves on the boards of the Donald Danforth Plant Science Center, KETC-TV Channel 9, and the Missouri Research Corporation.

Flora Mirabilis



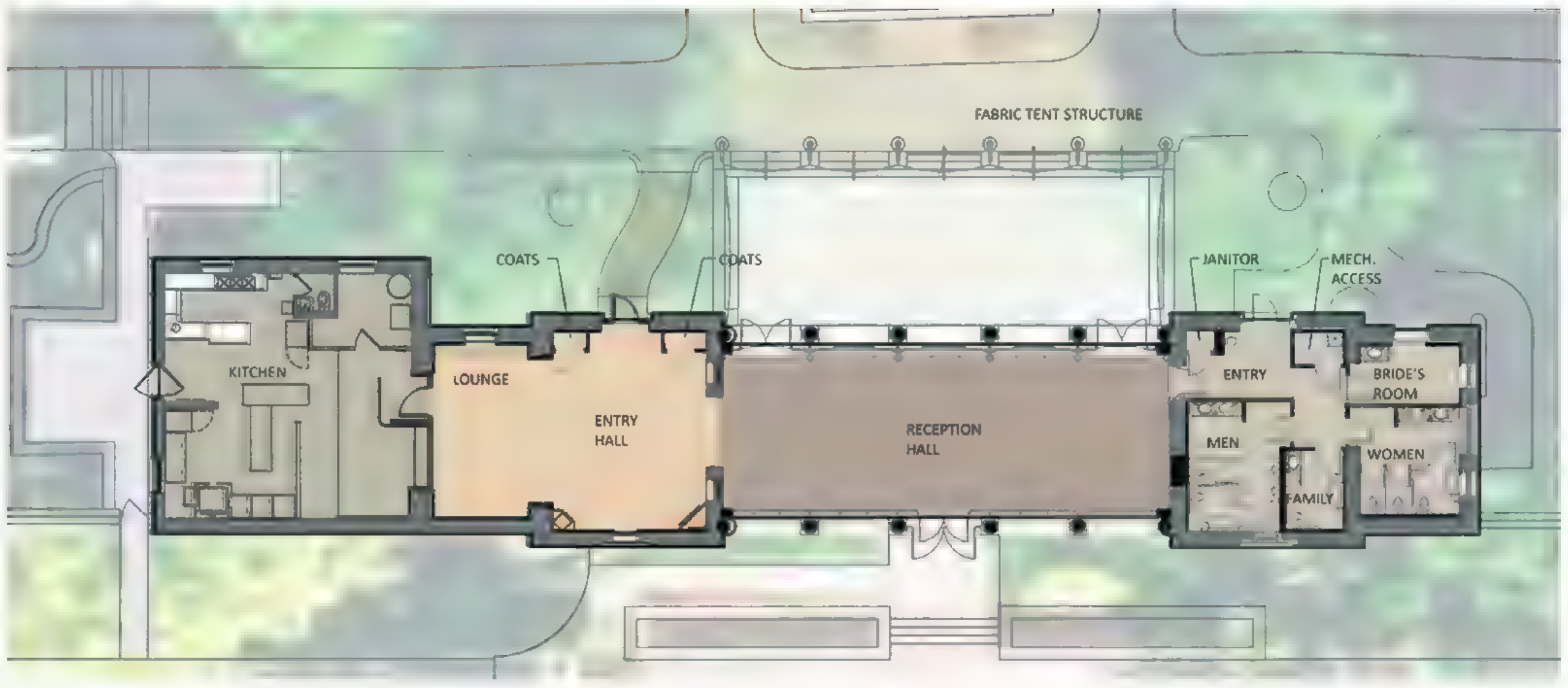
The Garden has collaborated with National Geographic to produce a new book, *Flora Mirabilis: How Plants Have Shaped World Knowledge, Health, Wealth, and Beauty*. Lavishly illustrated with more than 200 rare and exquisite botanical prints from the Garden's rare book collection, *Flora Mirabilis* recounts the adventures, the legends, and the lore that have linked plants and human civilization through the centuries. The book includes a foreword by the Garden's president, Dr. Peter H. Raven, and an introduction by Douglas Holland, director of the Garden Library. Purchase your copy in the Garden Gate Shop, where members enjoy a discount.

photos by Andrea Nickrent

New officers: Janet Lange (President), Silvia Madeo (Events Secretary), Laure Hullverson (1st Vice President), Paula Lampen (2nd Vice President), Parker McMillan (General Secretary), Lucy Ryan (Treasurer). New members: Maureen Jennings, Leslie Hood, Susan Squires, Mary Kay Denning.

Members' Board Updates

The Members' Board assists the Garden in its mission by organizing and implementing activities that encourage membership support, expand awareness, and increase the Garden's financial support. In January, the Garden held its annual meeting for the installation of new members and officers to the Members' Board.



Renovation plan for Spink Pavilion.

Spink Pavilion Renovations

The Spink Pavilion will be closed this winter for much-needed repairs and improvement. Occasional pathway closures will be necessary. Preserving the historic character of this structure, improvements will feature sustainable best practices and will include a renovated interior space; IT enhancements for corporate meetings, private events, weddings, and receptions; a seasonal shade awning to allow indoor/outdoor events; and renovated restrooms, including family and accessible options. This project has been made possible by capital campaign donations. Work is expected to be complete in April 2010. We apologize for any inconvenience.

photo by Christine Siebert

A tub grinder is used to pulverize and blend woody and leafy materials to make mulch on an industrial scale.

The Garden Composts Too!

Built in 1991 through a grant from the Missouri Department of Natural Resources, the Garden's composting and wood chipping site holds all of the plant refuse from our 79 acres. Twelve-foot high oak tie walls and an asphalt base allow for control of the pile size and composting conditions so these organic materials can be broken down through microbial activity to a particle size that can be re-introduced into the landscape. This green waste is recycled back into the Garden to improve soils, control weeds, and protect plants against extreme temperatures. The goal is to waste nothing, and our soils have improved tremendously.

Raised beds made with recycled plastic lumber.

"Pots to Planks" Returns

The Garden continues the highly popular Plastic Pot Recycling program and is pleased to announce that the planks are back! Working with Plastic Lumber Company of America in St. Louis, the Garden will complete the recycling loop to offer plastic lumber made from recycled pots. The lumber measures 2 x 6 inches x 8 feet and is fantastic for raised planters and garden beds. It drills and cuts like wood, but never rots! Call the Kemper Center for Home Gardening (314) 577-9441 to price and place an order.

photo by James Trager

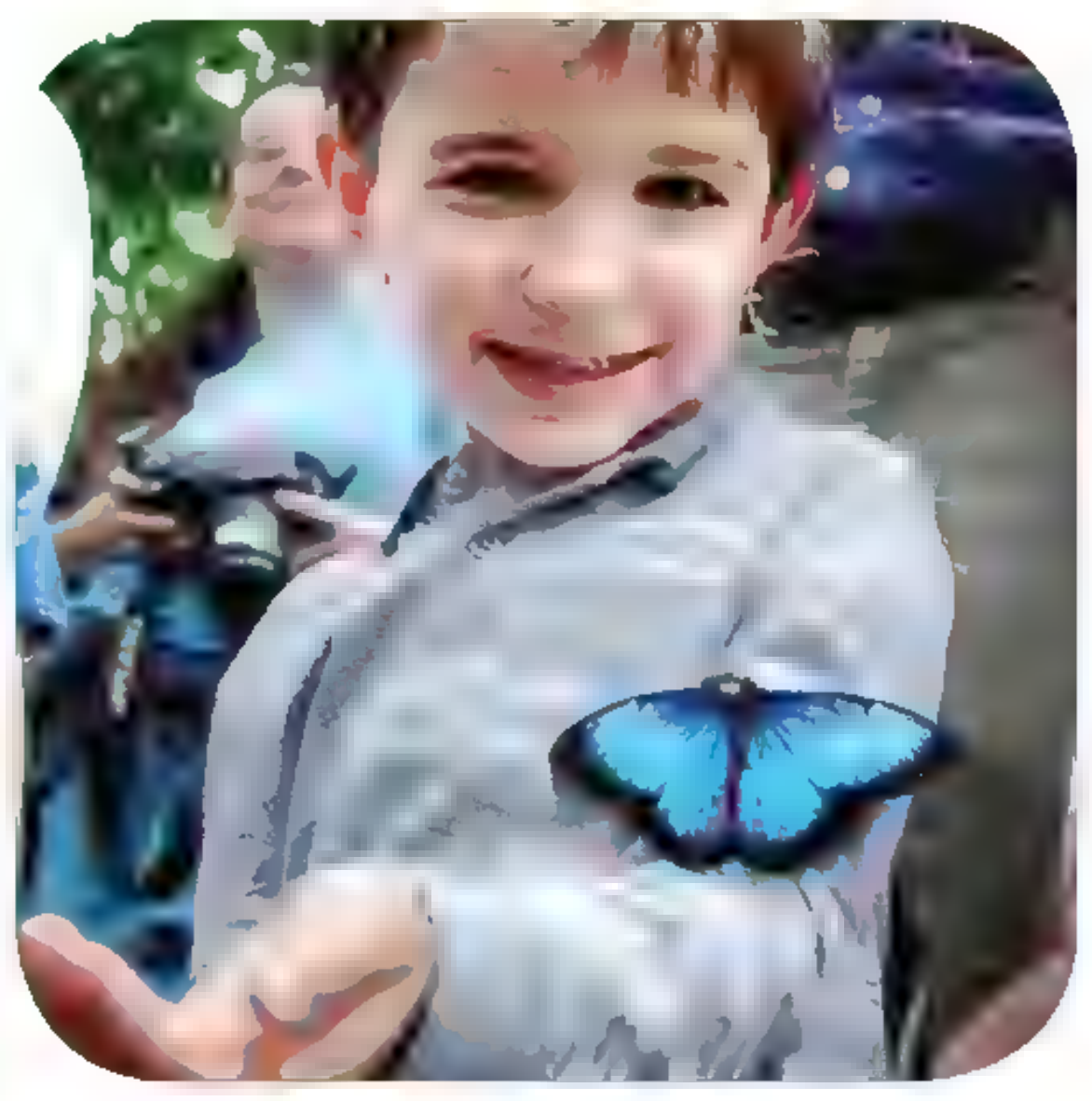
Volunteers collect seed at the Shaw Nature Reserve.

AmeriCorps Team at the SNR

The Shaw Nature Reserve was fortunate to host a team of young adults as part of the AmeriCorps National Civil Community Corps (NCCC) program. From November 15 through December 15, an 11-person team helped cut and treat invasive bush honeysuckle and aggressive woody species in glade and open woodland areas at the Reserve. The team also collected, cleaned, and processed seed, prepared fire breaks, and assisted with a prescribed burn. For more information on the AmeriCorps NCCC program, visit AmeriCorps.gov/nccc.

Just for Members...

Vegetable Gardening | *Thursday, March 4, 11 a.m. and again at 6 p.m., Shoenberg Theater*
Learn from Garden experts what to do and what not to do when planning your vegetable garden.



March Morpho Mania | *Thursday, March 18, 11 a.m., noon, 1, and 2 p.m., Butterfly House*
Experience a complete immersion among more than 3,000 blue morpho butterflies. Enjoy a special entomologist-led tour. Limited to 25 people per time. Reservations required; call (636) 530-0076 ext.10.

Eggstravaganza | *Sponsored by Peabody Energy*
Saturday, March 27, 9 a.m. to noon. Climatron lawn
It's the Garden's annual egg hunt. Kids love to meet "Bunny," the Garden rabbit. Parents love the gorgeous background of the Garden in spring. Ages two to 10. $5 per child. Reservations required; call (314) 577-9570 or visit www.mobot.org.

Rose Gardening: Lecture and Tour
Tuesday, May 11, 11 a.m., Shoenberg Theater and rose gardens
Join Garden experts and learn how to keep your roses looking beautiful for the entire season.

Climatron and Cocktails
Friday, May 21, 6 to 10 p.m., Climatron
Join the Young Friends of the Missouri Botanical Garden for this tropical happy hour to celebrate the Climatron's 50th anniversary. $30 per person, $15 for Young Friends' Garden members. Registration required; call (314) 577-9570.

Rose Evening | *Wednesday, May 26, 6 p.m., Spoehrer Plaza and rose gardens*
Take an evening stroll while enjoying the beauty and fragrance of the Gladney and Lehmann Rose Gardens during peak bloom. Appropriate for all ages.

photos by Ian Adams, Kat Douglas, LeeAnn Gomes, Heather Marie Osborn, Leslie Wallace, and Laila Wessel

All Members' Events are free for members unless otherwise noted. On these days, members also enjoy discounts of 10 percent in Sassafras and the Terrace Café and 20 percent in the Garden Gate Shop, Little Shop around the Corner, and the Madame Butterfly Gift Shop.

50
CLIMATRON
MISSOURI BOTANICAL GARDEN

New Membership Level

As a Garden member, you may have found that your Garden level membership, which admits two adults, wasn't quite enough. Still, you weren't ready to upgrade to the Family level, which admits 10. In response to your requests, the Garden introduces a new level of membership: **Garden Plus!**

Garden Plus admits four adults, perfect for teens, grandparents, and visiting out-of-town guests. As a Garden Plus member, you'll also receive double the Bonus Bloom passes (12), which are redeemable for Children's Garden admission and tram rides. Garden Plus membership is $95 a year (Garden membership is $65). Upgrade in 2010 and you'll receive the Garden's new travel umbrella, commemorating the Climatron's 50th anniversary. Call (314) 577-5118 or visit www.mobot.org/membership.

Tour Historic Kimmswick

Thursday, May 27, 8:15 a.m. to 4 p.m., departs Ridgway Visitor Center
Tower Grove House Auxiliary invites you to spend the day in Kimmswick. Tour the Anheuser Estate, dine at the famous Blue Owl, and explore the quaint shops. Cost is $50 (includes bus and coupon book). Reservations required by April 1; call (314) 577-9506.

photo by Kat Douglas

Chinese Culture Days

Saturday–Sunday, May 15–16, 10 a.m. to 5 p.m., Garden grounds
Sponsorship support provided by Novus International, Inc.
Chinese Culture Days celebrates Chinese culture with a Grand Parade featuring a 70-foot dancing dragon, Shanghai Acrobats, martial arts, Chinese calligraphy, painting, and authentic regional cuisine. Enjoy t'ai ji lessons and tea tastings in the Grigg Nanjing Friendship Chinese Garden, where special tours focus on the symbolism of many plant species and architectural details. Admission: $12 adults (13-64), $5 children (3-12), $5 members, members' children admitted free. Avoid the lines: purchase tickets in advance online at www.mobot.org.

Orchid Show 2010

now through March 28
Experience the color, beauty, and fragrance of orchids in bloom in the middle of winter. The Garden's annual orchid show features a rotation of over 800 orchids from the Garden's world-class collection in a lush garden of sweeping French-inspired design. Admission: $5 ages 3 and up. Garden members are admitted free.

Horticultural Therapy Awareness Day

Saturday, March 20, 10 a.m. to 3 p.m., Ridgway Visitor Center.
A pretty backyard may be one of the most obvious positive results of gardening, but it is not the only gain. Experience the numerous physical and mental benefits that plants and gardening provide!

earth day

Saturday, April 24, 10 a.m. to 3 p.m., Spoehrer Plaza
Learn how you can participate in a healthy future for planet Earth from the environmental organizations of Earth Share of Missouri. Behind-the-scenes greenhouse tours at 10 a.m., noon, and 2 p.m. Live bluegrass music from 1 to 3 p.m.

Baroque Spring!

Sunday, April 25, 3 p.m., Spink Pavilion

A concert of baroque music features the Trio Primavera ensemble playing works by Bach, Marini, and Jacquet de la Guerre in the newly-renovated Spink Pavilion, overlooking the Milles Sculpture Garden as tulips are at their peak. Seating is limited. Tickets are $15 ($10 for members). Purchase tickets in advance online at www.mobot.org or in person at the Garden beginning March 1.

Doris I. Schnuck Children's Garden—Celebrating Its 5th Season!

Thursday, April 1 through Sunday, April 4.
Opening week festivities are presented by Macy's.
Bring your children, grandchildren, nieces, nephews, and neighbors and help wake the Children's Garden with activities from 9 a.m. to 4 p.m. During our four day kick-off, become a plant detective and learn about plants we eat, explore the power of pollination, do hands-on planting with staff in the Nature Explore Classroom, listen to nature inspired stories and live music, and make a seed packet to take home. New this season! Members now receive free Children's Garden admission on Wednesdays and Saturdays from 9 a.m. to noon and all day on Tuesdays. Family-level members and above are always free.

GREAT GREEN ADVENTURES

Great Green Adventures

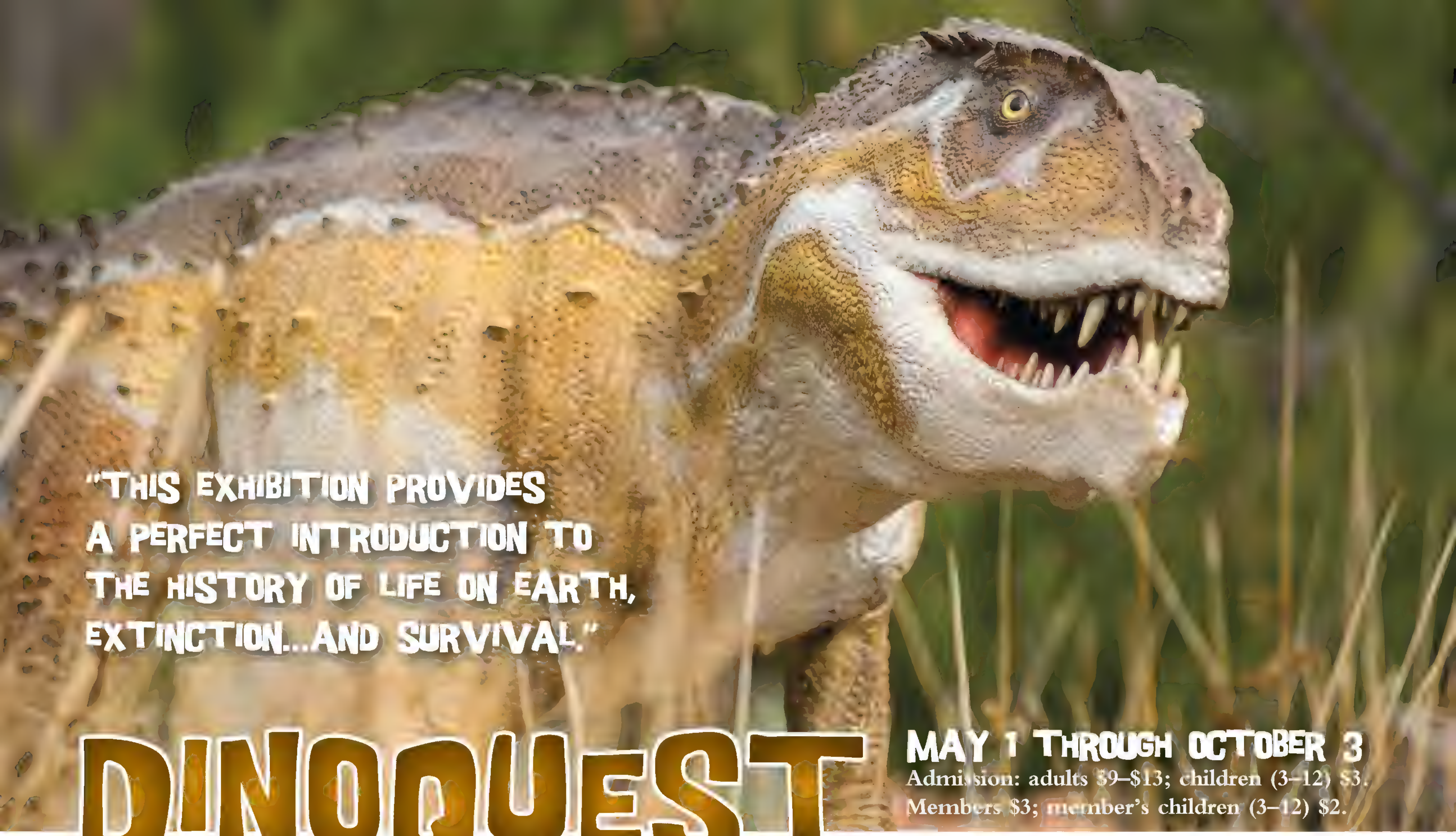
Third Saturday of each month, 10:30 a.m. or 1:30 p.m., meet at the Children's Garden
Explore special areas of the Garden and learn about plants, nature, and green living. Great Green Adventures are designed for children ages 6-12 with a parent or grandparent. $3 per child; Garden members are free. First-come, first-served, limited to 20 children. See the calendar p. 31–32 for upcoming themes.

www.plasticpot
recycling.org

Plastic Pot Recycling

Monday, May 3 through September 30, daily 9 a.m. to 5 p.m., Monsanto Center
The Garden's Plastic Pot Recycling is a nationally renowned program. Help complete the recycling loop. Recycle your plastic garden pots, cell packs, and trays at the Garden. For a complete list of collection centers in the metro area, visit www.plasticpotrecycling.com. Plastic should be separated and empty of soil with no metal hangers or rings. No clay pots or food plastic, please.

photo by Scott Dressel-Martin



"THIS EXHIBITION PROVIDES A PERFECT INTRODUCTION TO THE HISTORY OF LIFE ON EARTH, EXTINCTION...AND SURVIVAL."

DINOQUEST

MAY 1 THROUGH OCTOBER 3

Admission: adults $9–$13; children (3–12) $3. Members $3; member's children (3–12) $2.

Postosuchus dinosaur in the DinoQuest exhibit.

The Garden is marking the golden anniversary of the Climatron® by transporting visitors back in time to the golden age of dinosaurs. DinoQuest will fill the Climatron with eighteen installations of dinosaurs frozen in time amid the living flora, some of which dates back to the age of dinosaurs (see page 11). On a tropical trek through time, visitors will be invited to consider the importance of biodiversity and how our lives today depend on plants as they encounter hungry herbivore Heterodontosaurus or the 32-foot long T-rex. Outside you'll find on display for the first time, a 30-foot long Hypsibema, the Missouri State dinosaur.

The dinosaur discovery continues in the Brookings Interpretive Center. View a 65-million-year-old sandstone slab, weighing one-and-one-half-tons, and containing over 200 bones from dinosaurs, turtles, fish, and birds. Children can hone their own paleontology skills by unearthing faux bones at a dig site, play in a dinosaur nest, and envision themselves in the days of dinosaurs through green screen technology. They can also get an up-close look at the Dino Egg Incubator, an original prop from the set of the movie "Jurassic Park III." Special themed classes, events, and activities will be offered, including dinosaur-themed summer camp sessions, tropical forest ecology classes, and guided tours for school groups.

The Garden thanks sponsors Cardinals Care, Insituform Technologies, Inc., Macy's, Cheryl and David Morley, and an anonymous donor. Additional sponsorships are available. Call (314) 577-9513.

JURASSIC DARK

Thursdays, May–September, 6 to 10 p.m. (last entry 9:30 p.m.), Climatron and grounds

Bring your family to experience the DinoQuest exhibition after hours in the Climatron rain forest with dramatic lighting, sound, and fog. Outside, enjoy face painters, balloon artists, and Dino-mite dining in Sassafras. Admission is $9 adults, $7 children (ages three to 12), $5 Garden members, $3 members' children, and includes admission to the Doris I. Schnuck Children's Garden until 8 p.m.

DINOQUEST SLEEPOVERS

Friday–Saturday, May 7–8 (scouts) and Saturday–Sunday, June 26–27 (families)

Be the first to sleep out under the stars at the Garden's first official sleepovers! Designed for children ages 6–12, these overnight DinoQuest adventures include a private flashlight tour of the Climatron, a night hike through the Garden, stories, crafts, songs, and a rain-forest breakfast. Space is limited and reservations are required. Price is $45 per ticket ($35 for members). Each child must be accompanied by a parent or guardian. For more information, call (314) 577-9506.

photo by Scott Dressel-Martin

Bambiraptor in the DinoQuest exhibit.

DINOSAURS, SCIENTISTS, AND YOU:

Past, Present, and Future

by Sheila Voss, Vice President of Education

As a diversity of life-sized dinosaurs takes over the famed Climatron this May, the visually stunning scene may cause visitors of all ages to feel like they have been transported millions of years back in time to an age when these reptiles roamed all the continents of the Earth. Seeing the plant-eating Placerias amid the Climatron's ferns and cycads may have been a scene straight out of the Mesozoic Era. But while dinosaurs dined on ancestors of some of the very same plants thriving in the Climatron today, they most likely did not inhabit landscapes that looked and felt like the tropical forests of today. The landscapes dinosaurs roamed probably looked much different.

How do we know this? How do we know in which habitats they thrived? Or in what regions they lived? Or how long they dominated the Earth? Or what they ate? Science. And more specifically, scientists. Paleontologists and other scientists have led us to understand dinosaurs as extraordinarily successful animals that dominated terrestrial ecosystems for over 160 million years—and how these ecosystems evolved. The Garden's own paleobotanist, Dr. Alan Graham, has greatly advanced scientific knowledge of the origins, history, and evolution of tropical vegetation over the past 75 million years, as well as the climatic and geologic events that have driven these changes. Scientists have uncovered much of what we know about dinosaurs, other species throughout time, and the changing world in which they lived.

In addition to shedding light on the past, scientists continue to increase our ability to understand the present and future. Of the estimated 300,000 species of plants that science has documented, two-thirds are found in the tropics. And while they only cover about seven percent of the Earth's surface, tropical rain forests are home to approximately 50 percent of all species. Science also informs us that deforestation contributes 20 percent of the world's greenhouse gas emissions. By the end of the century, because of deforestation, global climate change, and other threats, many scientists warn that fully half of the world's plant species could be extinct in nature.

Here's where you come in. If all of us—consumers, students, teachers, parents, professionals—understood and truly valued the services these ecosystems provide, our decisions, both big and small, might be different. We would use less paper, shop smarter, and reduce our consumption of practically everything. Our policies, practices, and priorities would be different. Trees and forests would be worth more standing than cut down. While science is helping save the day in terms of what we know and understand about our complex world, citizens like us need to change our behavior to make a difference. These prehistoric plants survived until the current era. If we continue on our course, how many of today's plants will make it into the future?

PLANTS WITH A PAST

Humans are like dinosaurs...we both depend on plants for life! In fact, all life on Earth depends on plants. Plants take the energy of the sun and convert it through photosynthesis into food. Herbivores (plant-eaters) eat the plants. Carnivores (meat-eaters) eat the herbivores. Here are some plants with ancient "roots" (ha ha) that you can see in the Climatron and outside on Garden grounds during DinoQuest:

Moss

Mosses: The most diverse plant group after angiosperms (flowering plants), mosses are small plants that grow close together in clumps or mats in damp, shady areas. They have neither flowers nor seeds!

Gnetophytes: (NEE-toe-fights) These seed-bearing plants can grow as shrubs, trees, or vines and share similarities with both gymnosperms (like the conifers) and angiosperms. Fossils of gnetophytes date to the Late Triassic, about 200 million years ago. Today, there are three surviving genera: *Ephedra*, *Gnetum*, and *Welwitschia*.

Gnetophyte

Cycad

Cycads: Cone-bearing plants that look like palms, cycads reached their peak in the Mesozoic Era some 150 million years ago. Today, cycads are found in tropical, subtropical, and warm temperate regions. They have a slow-growing trunk (up to 1,000 years). See eight of the nine known genera inside the Climatron.

Ferns: These perennial plants bear no flowers, but instead reproduce by spore and range in size from a few inches to 50 feet tall. Eons ago, ferns lived beneath the shady canopies of giant club mosses and horsetails, and dinosaurs ate their soft fronds.

Fern

Selaginella

Selaginella: (SELL-uh-gin-ELL-uh) Spike moss, as it is commonly known, is a low creeping plant with roots and tiny cones. It is widely distributed all over the world, particularly in the tropics, with more than 700 species of moss-like, or sometimes fern-like, perennials.

Horsetail: Also called scouring rush, horsetails (*Equisetum*) have rings of thin leaves and spore-bearing cones at the end of their branches. Before the dinosaurs, these plants grew to giant size. They survived the age of the dinosaurs, though they became smaller as the climate became drier. Horsetails grow in moist, rich soils in almost all parts of the world. Look for them near the bog in the English Woodland Garden.

Horsetail

Ginkgo

Ginkgo: A modern-day survivor of an ancient evolutionary line extending back 150 million years, the ginkgo (*Ginkgo biloba*) appears to have undergone very little change from its ancient ancestors. In the Garden, ginkgo trees can be found across from the main entrance to the Climatron.

Dawn Redwood: A coniferous, deciduous tree native to remote valleys of Central China, the dawn redwood is the only living species of the genus *Metasequoia*. In the Garden, these trees can be found near the Lehmann Building.

Dawn Redwood

Climatron: Celebrating 50 Years (1960–2010)

A Day in the Life of an Indoor Rain

Since opening day, October 1, 1960, the Climatron has captivated visitors with the lush landscape within. In the heart of the American Midwest, this half-acre garden under glass offers an introduction to some 2,233 plants (at last count) of a tropical lowland rain forest. For generations of St. Louisans, a field trip to the Climatron is their first memory of the Garden. Throughout the year, over 700,000 visitors and nearly 100,000 school children stroll through.

The amazing plant collection is cared for by four full-time staff and a crew of nine volunteers under the leadership of Senior Horticulturist Deborah Lalumondier. Here is a snapshot of the Climatron behind-the-scenes.

7:30 a.m.

Senior horticulturist Deborah Lalumondier hand-waters plants in the Climatron. Staff spend 2–4 hours each day watering by hand with special water that's been filtered, purified, and tempered.

8 a.m.

The tropical birds of the Climatron are fed a combination of birdseed, fruit, and mealworms each day.

10:30 a.m.

Horticulturist Susie Ratcliff spends most of the day pruning plants to grow their best.

Once a week, fresh blooming orchids are rotated into the Climatron from the Garden's greenhouse.

11:30 a.m.

Each November, Garden staff trim the "canopy" of the Climatron. Arborist Teresa Pafford ascends nearly 70 feet in a lift.

Forest

Garden horticulturist Tutti Gomillia feeds the 18 Amazonian fish daily.

photos by Todd Gilbert, Jennifer Meinhardt, Christine Siebert, and Kevin Wolf

6:30 a.m. Horticulture staff arrives.

They check e-mail and voicemail and answer inquiries about the tropical plants they maintain. Staff also check the Climatron's computerized climate control system which maintains a temperature range of 64°F (29° C) at night to a high of 85°F (18° C) during the day.

7 a.m. Walk-through

The team performs a walk-through of the entire facility, checking for anything out of order before the public begins arriving at 9 a.m. "We look for everything from leaf litter and palm fronds to possible broken glass. We've had raccoon break-ins before. Sometimes a tree falls over—they can get a little too tall from stretching toward the light," says Lalumondier.

7:30 a.m. Watering

Lowland tropical rain forests receive regularly distributed rainfall throughout the year, and the average humidity is 85 percent. For two to four hours every day, depending on the season, the Climatron staff must water the plants by hand with purified, tempered water similar to rain water.

8 a.m. Feeding

Before the visitors arrive, horticulturist Susie Ratcliff and her volunteers feed the Climatron's animals. The birds (including a variety of tropical doves and tanagers) eat bananas, blueberries, oranges, peas, and corn. They also eat live mealworms, which arrive once a month by mail.

The Amazonian fish eat tropical fish food. However, the Archer fish on display in Brookings Interpretive Center eats live crickets. The fish gets its name for its habit of shooting jets of water to knock insects off their perch. The crickets are placed on nearby branches.

The poison dart frogs and gecko lizards dine on the rest of 1,000 live crickets that arrive weekly.

10:30 a.m. Orchids

Orchids are a key feature of the rain forest, and the Climatron features over a dozen permanent varieties. In addition, staff cycle in flowering orchids to ensure bloom.

11:30 a.m. Maintenance

The rest of the day is spent in plant maintenance. Staff members prune anything too big, remove yellow leaves, install new plants, and move others. Generally, as long as the plants are situated in the right location with the right temperature, water, and ventilation, there are no pests.

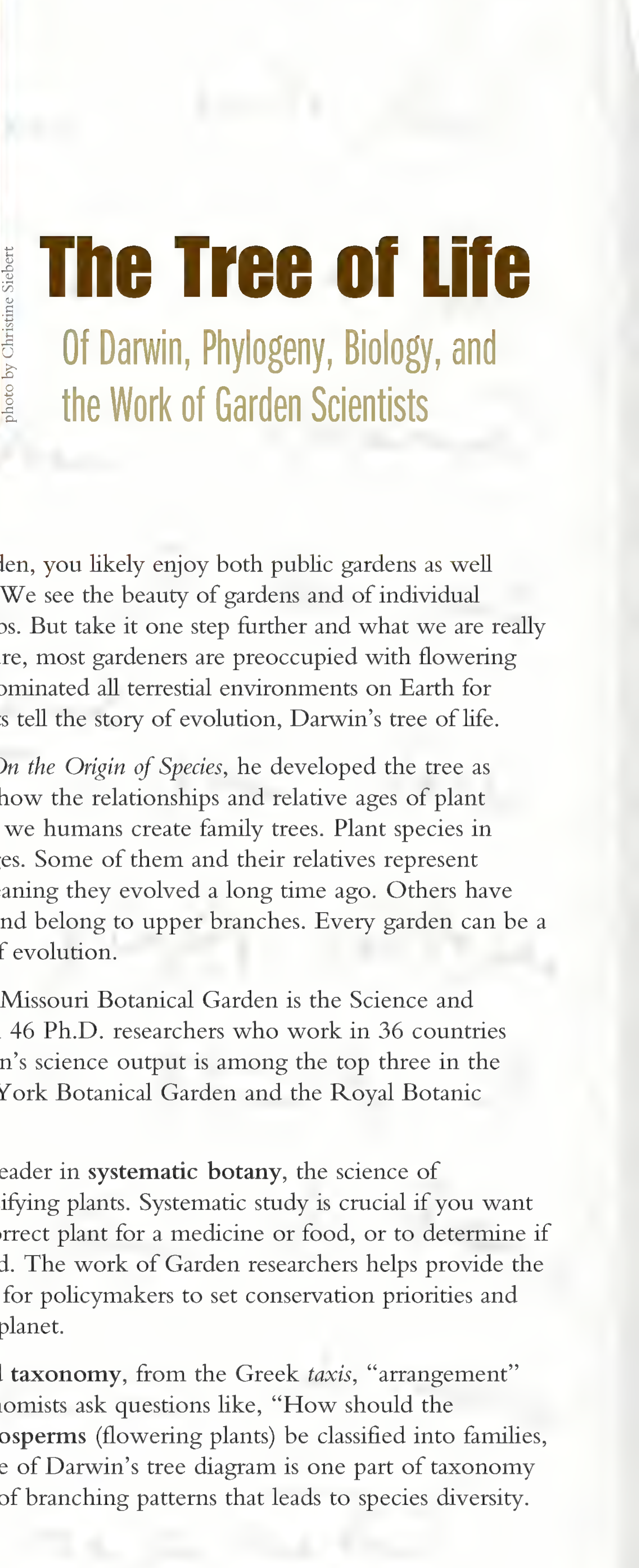
Climatron Staff: Deborah Lalumondier (Senior Horticulturist), Tutti Gomillia, Melissa Ecker, Michelle Gray, and Susie Ratcliff

Climatron Volunteers: Barbara Anderson, Susan Butler, Cari Curtis, Patrick Driscoll, Gene Jarvis, Polly Kinslowe, Tamara Pisoni, Warren Tabachik, and Andrew Tonner

THE ORIGIN OF SPECIES

photo by Christine Siebert

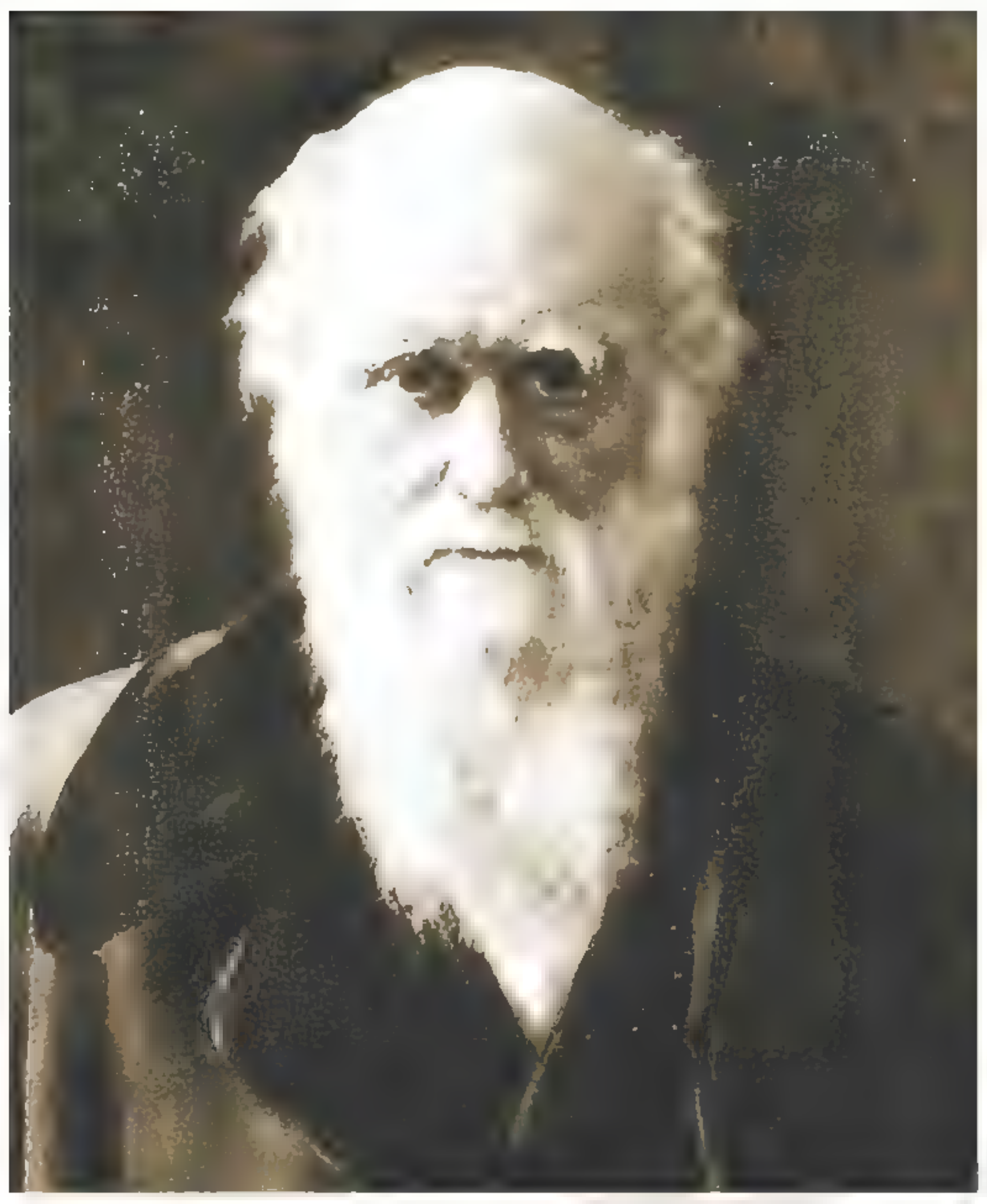
The Garden's collection of Darwiniana includes a handwritten letter, an herbarium specimen, and a first-edition book.



Darwin first drew his evolutionary tree in a notebook in mid-July 1837, while he was working on* On the Origin of Species*. He doodled "I think" above it.

The Tree of Life

Of Darwin, Phylogeny, Biology, and the Work of Garden Scientists



Charles Darwin

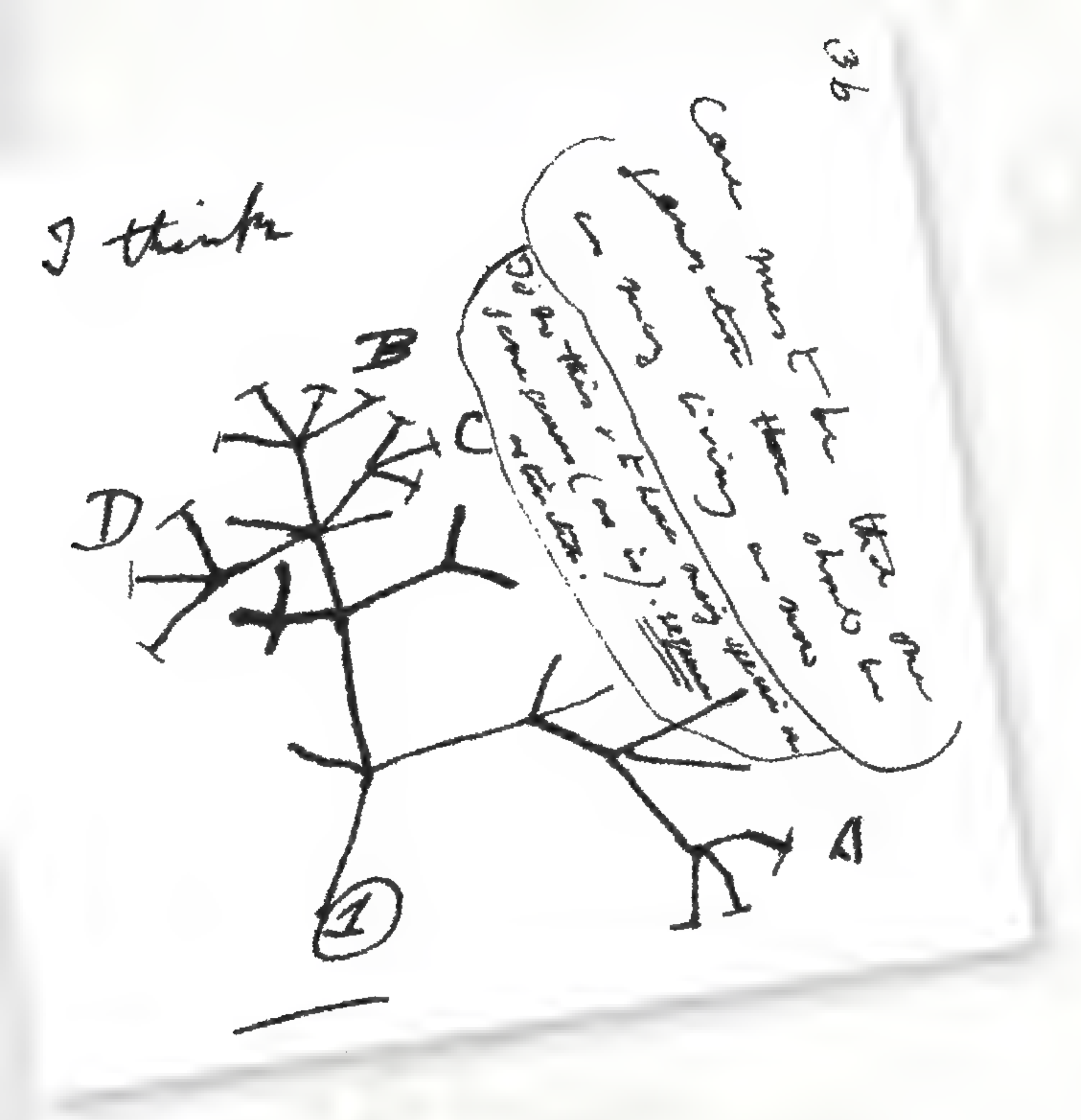
As a member of the Garden, you likely enjoy both public gardens as well as your own backyard. We see the beauty of gardens and of individual flowers, trees, and shrubs. But take it one step further and what we are really admiring is the tree of life. Sure, most gardeners are preoccupied with flowering vascular plants, which have dominated all terrestial environments on Earth for millions of years. But all plants tell the story of evolution, Darwin's tree of life.

When Darwin was writing *On the Origin of Species*, he developed the tree as a metaphor of evolution to show the relationships and relative ages of plant and animal families, much as we humans create family trees. Plant species in our gardens have different ages. Some of them and their relatives represent low branches in this tree, meaning they evolved a long time ago. Others have appeared relatively recently and belong to upper branches. Every garden can be a small laboratory for studies of evolution.

The "unseen garden" of the Missouri Botanical Garden is the Science and Conservation Division. With 46 Ph.D. researchers who work in 36 countries around the world, the Garden's science output is among the top three in the world, along with the New York Botanical Garden and the Royal Botanic Gardens, Kew, in England.

The Garden is a recognized leader in **systematic botany**, the science of identifying, naming, and classifying plants. Systematic study is crucial if you want to be certain you have the correct plant for a medicine or food, or to determine if a species is rare or endangered. The work of Garden researchers helps provide the crucial information necessary for policymakers to set conservation priorities and help preserve our biodiverse planet.

Systematics can also be called **taxonomy**, from the Greek *taxis*, "arrangement" and *nomia*, "method." Taxonomists ask questions like, "How should the tremendous diversity of **angiosperms** (flowering plants) be classified into families, genera, and species?" The use of Darwin's tree diagram is one part of taxonomy called **phylogeny**, the study of branching patterns that leads to species diversity.



"For any biological classification system to be effective, it must be stable, universal (i.e., used by a wide range of people), and it must enhance communication of knowledge by helping us to relate things," says Dr. Peter Stevens, Garden researcher. He is also the creator of the Angiosperm Phylogeny website (www.mobot.org/mobot/research/apweb), which includes the most recent tree diagrams for all plant families. These diagrams shift and change over time, as scientists are constantly learning more about the plants.

Scientists once relied heavily on the appearance of a plant in order to classify it, a study called **morphology** (study of *morphe* "form, body"). Today, morphology is joined by molecular analysis. The Garden and the University of Missouri-St. Louis have a unique collaboration in the E. Desmond Lee and Family Laboratory of Molecular Systematics at UMSL. Created in 1998, the lab provides a space for researchers to apply DNA sequencing tools to the study of plant taxonomy with Dr. Elizabeth "Toby" Kellogg.

Gardeners may not know that most groups of plants, including ornamentals, have been studied by scientists. Peonies, for example, the subject of the article on page 18, have maintained their beauty for centuries, but not their place in the taxonomic system. First, they were thought to belong to the Buttercup family, but after some morphological study, they were moved to Dilleniaceae family. Today, thanks to new molecular studies, botanists place peonies in their own unique family—Paeoniaceae (with two genera, *Glaucidium* and *Paeonia*). It is also through taxonomy that we know which plants are "prehistoric" (see page 11) and which had ancestors that might have been around in the era of dinosaurs.

Darwiniana

The Garden holds a small collection of Darwin-related materials. Most celebrated is the Garden Library's first edition of Darwin's *On the Origin of Species*, considered to be the foundation of evolutionary biology. Only 1,170 copies were available for sale on November 24, 1859, in London. The book was written for the non-scientist reader and attracted widespread interest upon its publication, as Darwin was an eminent scientist. Various theories of evolution had already been circulating. Darwin's was unique for its introduction of the concept of natural selection.

The Garden Herbarium has a specimen collected by Darwin during his voyage onboard the *Beagle*. It is of a small fern, *Asplenium dareoides*, collected from Cerro Tres Montes, Chile, on December 30, 1834. Darwin described the excursion during which this specimen was collected in his *Journal of Researches*:

> "We anchored in a snug little cove at the foot of some high hills, near the northern extremity of Tres Montes. After breakfast the next morning, a party ascended one of these mountains, which was 2400 feet high. The scenery was remarkable. […] The limit of man's knowledge in any subject possesses a high interest, which is perhaps increased by its close neighbourhood to the realms of imagination."

The Garden Archives holds a three-page handwritten letter from Charles Darwin to Professor William Crawford Williamson, the English naturalist and paleobotanist, sent in 1846. It discusses some fossils from South America and shows the challenges of conducting science in an era before phone, computer, e-mail, Internet, and easy travel. (The strike-throughs, Victorian punctuation, etc. are Darwin's own.) It reads:

Down Farnborough Kent
June 23rd.

Dear Sir:

Absence from home has prevented me answering your letter of the 14th more promptly. – Unfortunately, I did not keep any list of the specimens, which I sent you, & cannot charge my memory whence they all came & therefore am not able very fully to answer your queries. I could perceive no evidence of any particular chemical action in the Tertiary strata of S. America, certainly there has been no metamorphic action. The fossils are ~~generally~~ almost invariably calcareous & well preserved; but I do not think the ~~layers~~, strata, of which specimens were sent you, were those which contain fossils shells: I did not know your object & picked out specimens, which appeared to my eyes most likely to contain, infusaria. – The white pumiceous mudstone from Patagonia contains no such shells. – Most of the such strata, as I sent you, have, I believe, resulted primarily in volcanic action, that is either from erupted ashes, or triturated volcanic works. – I am much surprised at what you say about the abundance of the siliceous matter; my impression was a different one. – You refer to a "Tufaceous Layer" & speak of each fragment being of siliceous matter: is this Tufaceous Layer, marked R, Negro?, if so, I think, you will find that the whole is easily friable & therefore cannot be silica; but I do not know what microscopical test you have to distinguish glassy feldspar & silica. – I think I sent specimens from. St. Fe, I have no reason to suppose that they have originated in volcanic action; & the beds are associated with others abunding with calcareous fossil shells. – In almost most many of the Tertiary formations of S. America, the fossils occur in concretions, which have been formed by the aggregation of calcareous matter. – I wish it was in my power to give you more satisfactory information.

Believe me dear Sir
yours faithfully
C. Darwin

Garden botanist Reza Ludovic presses plant specimens at Midongy du Sud National Park.

Chemical Companions

Why Plants Matter So Much to Humans

by Ashley Glenn, Research Specialist and Sacred Seeds Program Manager

Why It Matters

Garden scientists in 36 nations around the globe discover over 200 new plants per year! Every single one—from the tiniest orchid to the largest tree—helps fill gaps in our knowledge about the history of the earth and the biology of its organisms. Once scientifically documented, plants can be analyzed for medicinal properties and included in conservation plans. Your Garden membership helps fund these worthwhile science and conservation programs around the world.

All organisms evolve in a chaotic world, constantly thwarting threats to survival. How we survive is as varied as our biology. Humans use community and tools; giraffes use far-reaching necks and speed; and snakes use camouflage and venom. And plants? Plants use chemistry. Incredibly complex chemicals that we can only hope someday to fully understand. What we do know about plant chemistry shows that plants aren't passive nutrient factories; rather, they are organisms fully engaged in their environment.

Plants can't see, hear, talk, or touch, so chemicals become their senses. Stems and leaves can sense variations in light waves and grow toward the best light. Roots analyze soil nutrients and optimize intake by growing toward rich soil. Plants sense the changing of seasons to know the best time to flower and fruit. Most plants employ these strategies. Chemical compounds that serve crucial functions such as growth and photosynthesis are primary compounds.

Where the story gets really interesting, however, is with the other chemicals, the secondary compounds. Plants produce a staggering array of chemicals that don't fit the primary compound role and are involved in more specialized communication. In the past, these compounds were considered chemical "noise," leftovers from the more crucial biochemical pathways. However, in the past several decades, diligent botanists and chemists have unearthed an amazing tale of evolutionary adaptation from these secondary compounds. The scent of an orchid attracting its specific pollinator, the spicy cayenne pepper deterring hungry animals, the "poison" in poison ivy: all secondary metabolites, produced by the plant to help it thrive in its particular environment. Some serve to attract beneficial species that help the plant by pollination or protection, and others serve to deter pests, from microbes and insects to animals and even humans. But we humans are evolving, too, and we innovate for our own survival. We have learned how to avoid or disarm many poisonous plants, and even how to make these chemicals work in our favor.

Take the *Salix*, or willow, for example. When a willow leaf is under microbial attack, the plant will produce salicin in response. This compound prompts the tree to start making heaps of pathogenic chemicals, thereby defending the plant from future attack. Some of this salicylic acid can become airborne and is sensed by nearby willow trees, telling them to defend themselves as well. Humans have taken advantage of this adaptation for millennia, and cultures as diverse as the Cherokee and ancient Greeks have used willow bark to lower fevers and alleviate pain. If you have ever taken an aspirin, you have benefited from all of this botanical and medicinal innovation, as salicin studies led to the development of aspirin, initially created from salicylic acid.

Another incredible success in the study of plant chemistry is the discovery of vincristine and vinblastine in *Catharanthus roseus*, the rosy periwinkle. This flower from Madagascar produces these compounds to act as powerful insecticides. The Malagasy use the plant to treat diabetes, which alerted scientists to its bioactivity. While testing for effectiveness against diabetes the scientists came up empty, but they noticed strong "cytotoxic" activity—the compound was toxic to certain cells. The extracts made from this discovery have resulted in over 80 percent remission of Hodgkin's disease and acute childhood leukemia!

From these cases alone the value of plant chemistry is clear to see. The amazing evolutionary advances made by plants, coupled with mankind's amazing ability to innovate, can have profound effects on our well-being. To continue this story, we need dedicated botanists, chemists, and doctors exploring plant chemistry. And perhaps most importantly, we need the plants to survive long enough for us to discover their secrets. We can't predict what is hidden in our forests and jungles, but it's clear we have only begun to scratch the surface.

photos courtesy Wendy Applequist

Rosy Periwinkle

Sacred Seeds: Conserving Medicinal Plants

Often when we talk about human plant use and conservation, these ideas appear in conflict. Humans are responsible for the overharvesting and deforestation that threaten so many species. And yet, there are numerous ways to encourage plant use while still conserving ecosystems.

Among the many conservation efforts of the Missouri Botanical Garden is the Sacred Seeds program. Sacred Seeds is a network of sanctuaries around the world conserving both biodiversity and traditional plant knowledge. Each sanctuary houses a botanical garden as a "living seed bank," comprised of plants used for medicine, ceremony, food, and crafts. This garden serves as a venue for exercising, sharing, and experimenting with plant traditions. The work of the Missouri Botanical Garden highlights the reliance people have on their local forests, and Garden scientists work with communities to ensure that both people and plants benefit from these efforts. By protecting medicinal and other valuable plants, we promote a future of health and vitality for the people that depend on these plants.

The Missouri Botanical Garden Sacred Seeds program is sponsored by New Chapter.

a passion for peonies

Flowering Plants Woo Humans and Ants

photo by Leslie Wallace

Peonies at peak bloom along the Ruwitch Peony Walk in Seiwa-en, *the Japanese Garden.*

It is spring, and a young person's fancy turns to angiosperms. Angiosperms are flowering plants, the most diverse plant group on the planet, with an estimated 350,000 living species in all but the most extreme environments. The first true angiosperms appeared around 140 million years ago and revolutionized plant life by involving animals in their reproduction, thus broadening their adaptability.

Humans, too, have been enlisted to help perfect plant genetics. Michael Pollan, author of the *Omnivore's Dilemma*, also wrote *Botany of Desire.* The 2001 book was recently made into a PBS documentary. In it, Pollan proposes that plants are actually using humans to proliferate by offering us their fruits, fibers, and other substances in the same way they offer nectar to insects to co-opt them in the act of pollination.

So what do peonies offer us? Peonies were renowned in antiquity for their medicinal properties, a reputation that continues today. The Garden's assistant curator of medicinal plants, Wendy Applequist, reports: "Peony root is still used in Asian herbal medicine. Studies show that peony extract or molecules from it may have a protective effect against various types of chemically induced toxicity and organ damage."

Peonies are also gorgeous! The Garden displays over 250 peonies, representing about 100 varieties.The highest concentration is found in the **Ruwitch Peony Walk** in *Seiwa-en*. Designed by landscape architect Koichi Kawana to introduce a contrasting element to balance the starkness of the dry garden across the path, the Peony Walk

The Garden displays over 250 peonies, representing about 100 varieties.

photo by Leslie Wallace

Visitors in May enjoy the delightful fragrance of the Ruwitch Peony Walk.

includes over 30 cultivars, including the light pink 'Zuzu' and the red 'Mikado' and 'Scarlett O'Hara.' These beauties burst into full, fragrant bloom each May—a display not to be missed.

At the same time, visitors can appreciate the peonies in the Grigg Nanjing Friendship Chinese Garden. These 27 varieties are mostly *Paeonia suffruticosa*, Chinese tree peonies, which grow taller and woodier, but are still beautiful and scented. There are also peonies sprinkled around the Blanke Boxwood Garden and in a few display gardens of the Kemper Center for Home Gardening.

The Genus *Paeonia*

There are about 35 species in the genus distributed in Eurasia and two species from western North America. Some species are shrubs; most are herbaceous perennials. Peonies have been used for medicinal purposes since 900 BCE. According to ancient Greek poet Hesiod, the physician Paeon cured Hades, god of the underworld, of an arrow wound. This upstaged Paeon's teacher Aesculapius, the god of healing, who jealously caused Paeon's death. However, the grateful Hades saved the doctor by transforming him into the plant which continues to bear his name.

Peonies still dot the Greek landscape. The Garden's associate curator Nicholas Turland has studied these Mediterranean varieties, which include some beautiful species, often limited to particular islands. Some are rare and threatened, such as the black-flowered *Paeonia parnassica*, which is native to Mts. Parnassus and Elikona.

Peonies are exceptionally popular ornamental plants. In 16th-century China, gardeners had already bred 30 cultivars. Today, there are thousands. However, plant geneticists say that the possibility of producing new varieties from current stock is limited, that new "blood" is needed. In this case, reports the Garden's Ph.D. researcher Tatyana Shulkina, the Garden's work with Caucasian countries could help. "There are many species of peonies native to the Caucasus, which have been largely unexploited in breeding until now," says Shulkina referring to the six-country region between the Black and Caspian seas that includes Armenia, Azerbaijan, Georgia, Iran, Russia, and Turkey. "Some even include yellow flowers." (Peonies are primarily red, pink, or white.)

Cultivation

Peonies are long-lived and can persist in a garden for decades without replanting, so long as they were well-planted to begin with. Plant in late fall (October-November) in full sun and in rich soil with good drainage. Be sure not to plant too deeply: the "eyes" or growth nodes should be just below the soil line. Fertilize lightly throughout the year and water during the growing season, but do not allow the soil to become waterlogged.

And the ants?

Most gardeners know that peonies are coated in tiny ants prior to bloom. The ants were once thought to be necessary for pollination or for bloom opening, but neither appears to be true. As the Heartland Peony Society puts it, "The ants aren't harmful, so don't spray. Just enjoy the unique interaction of ants and peonies, an evolutionary effect thousands of years in the making." To remove ants from cut flowers, shake well prior to bringing indoors or submerge flower heads in water for five minutes.

Purchasing

- Klehm's Song Sparrow Perennial Farm and Nursery in southeastern Wisconsin has a reputation for excellence, www.songsparrow.com.
- Gilbert H. Wild & Son in Sarcoxie, MO, was founded as a peony grower in 1885 and is one of the largest in the nation, www.gilberthwild.com
- Bannister Garden Center in Raymore, MO, outside Kansas City, is a specialty peony retailer, www.peonies.net.

Resources

- Halda, Josef J. and James W. Waddick. *The Genus Paeonia* (Timber Press: 2004).
- Heartland Peony Society, www.peonies.org

photo by Leslie Wallace

photo by Deborah Chollet Frank

A waste audit can help a business measure recycling progress. Garden staff sorted and weighed Monsanto Center trash last July. Results documented that over 70 percent of this building's solid waste is being recycled or composted!

The Next Evolution: Sustainable Business Practices

by Jean Ponzi, Green Resources Manager

A recent survey conducted by the Garden's Corporate Council demonstrates how local companies are focusing on sustainability. "Survey responses from 75 percent of council-member companies detailed over 20 significant measures that these businesses have implemented or intend to tackle," reports EarthWays Center Director Glenda Abney, who helped develop the survey. "These business leaders realize their environmental protection investments yield multiple returns, including higher workplace productivity and a healthier community of customers."

The Garden's EarthWays Center is providing problem-solving expertise to many local corporations and small companies to help transform their practices. As resource advisor for the St. Louis Regional Chamber and Growth Association's Green Business Challenge, the EarthWays team is helping to coach RCGA member firms in a friendly competition to implement small sustainable changes that create big impact for any business. Participants can:

- establish company Green Teams to engage everyone from temps to CEOs in sustainability measures.
- reduce building energy use through lighting retrofits, energy audits, weatherization, and ENERGY STAR office equipment.
- safeguard indoor air quality by converting maintenance products and practices to non-toxic Green Cleaning regimens.
- decrease waste through recycling collection, paper reduction, negotiating with product suppliers to cut packaging and shipping waste, and by stocking break rooms with reusable plates, mugs, water pitchers, and cutlery.
- conserve water through restroom and kitchen fixture retrofits and sustainable landscaping.
- promote alternative transportation through company-wide carpooling, transit-pass and telecommuting programs, and installing bike racks and showers to support bicycle commuting.

"The Garden benefits from our Corporate Council's leadership and project contracts with partners like the RCGA," says Deborah Chollet Frank, Garden Vice President of Sustainability. "The businesses gain access to the expertise of our sustainability team. It's a full circle of sustainable growth!"

Businesses everywhere are discovering how green practice can generate green profits—to stay competitive on a small planet! How can the Garden help your company grow greener?

Sustainable Business Workshop

Fridays, March 5, 19, April 9, 16
Hosted by the Garden and Sustain*Edge*, the Sustainable Business Network workshop series offers companies of any size the opportunity to re-think "business as usual" in a strategic, sustainable way. Participants in this four-part training will draft a sustainability plan for their own business. For details, business-greening resources, or workshop registration visit www.earthwayscenter.org/sustainablebusiness or call (314) 577-0220.

Together Bringing You MO Wilderness

photo by Heather Marie Osborn

Visitors enjoy a walk at Shaw Nature Reserve.

by Lydia Toth, Senior Manager of Education

The Missouri Department of Conservation (MDC) is heralded as one of the leading conservation organizations in the nation. One of the many ways the MDC magnifies its impact is through strategic partnership. The Shaw Nature Reserve has been a proud partner of the Department of Conservation for over seven years, and the collaboration is about to grow. Later this year, members of the MDC education staff plan to relocate to the Reserve's new Environmental Support Complex, scheduled for completion in 2010.

For years, the two organizations have collaborated on a variety of projects, including the popular biannual Prairie Day, which takes place this year on Saturday, September 25. MDC co-sponsors the Native Plant School and other Grow Native! activities, capitalizing on the Reserve's renown as a location for native plant displays and education. MDC sponsors professional development for educators, Discover Nature—Women weekends, and a branch of the Missouri Master Naturalist program. MDC's Discover Nature—Schools curriculum engages students in pond, forest, and prairie ecosystems, and a visit to the Shaw Nature Reserve is often the culminating field experience.

"The Shaw Nature Reserve provides an ideal setting for Missouri citizens to experience nature and make lasting memories," says Jennifer Dierking, MDC Supervisor of Regional Outreach. With an MDC outdoor skills specialist on staff, the Shaw Nature Reserve will be able to offer new activities for school and youth groups, such as archery and fishing. Whether these are stand-alone experiences or part of a series through the Dana Brown Overnight Center, "It will be exciting to see what the combined talents and skills of the staff from MDC and the Reserve will produce in the upcoming year," adds Dierking.

"The Missouri Botanical Garden and the Missouri Department of Conservation have enjoyed a long and productive history of collaboration. Hosting MDC staff at the Reserve will certainly strengthen this important and ongoing partnership," says John Behrer, Shaw Nature Reserve Director.

Tale Travelers: Prairie Edition

Saturday, April 17, 9:30 a.m. to 2 p.m.
Kids, gather your family, walking shoes, water bottle, and backpack for a prairie adventure at the Shaw Nature Reserve! An exploration of books and nature, Tale Travelers invites you to listen to nature stories, create cool crafts, and explore the outdoors. Come for an hour or stay all day. Activities are designed for children ages 3 to 12, but can be enjoyed by all. $5 ($3 for Garden members). Cancelled in event of rain.

Spring Wildflower Sale

Saturday, May 8, 9 a.m. to 4 p.m.
Choose from the widest selection of native plants available in the metro St. Louis area. The Reserve and nurseries from throughout the area will offer hundreds of varieties of annual and perennial wildflowers, ferns, trees, and shrubs, to use in home landscaping and to attract wildlife. Featuring the showiest and hardiest native plants for sun or shade. Members' presale: enjoy the pick of the plant sale before the general public on Friday, May 7, from 4:30 to 7:30 p.m.

JURASSIC BUGS

MAY 1-
OCTOBER 3

photo by Scott Dressel-Martin

Brontoscorpion in the Jurassic Bugs exhibit.

A TALE OF INSECT EVOLUTION

by Mark Deering, Collections Manager, and
Donna Dupske, Educational Services Manager

Don't miss **Jurassic Bugs** at the Sophia M. Sachs Butterfly House, starting in May. A companion to the Garden's DinoQuest exhibit, Jurassic Bugs features life-sized replicas of prehistoric arthropods. Learn how these animals have changed over millions of years as you explore exhibits containing many of their living relatives. Visit on the last Saturday of the month, and you can participate in games and crafts from 11 a.m. to 2 p.m.

To say that insects and other arthropods have been around for a long time may be a bit of an understatement, as they are far older than dinosaurs! The first terrestrial arthropod fossils are primitive millipedes and scorpions; they date back to 450 million years ago (MYA). Distinct insects first appear at 430 MYA, and by 90 MYA most modern groups are well represented. The Lepidoptera evolved around 160 MYA in the form of moths. Butterflies likely evolved from a group of day-flying moths that appeared around 75 MYA.

Insect fossils are formed as dead or dying insects fall into bodies of water and are covered by sediment. Over time, their soft parts are replaced by minerals and other layers, creating the fossils we study today. Fossil records show animals like scorpions and dragonflies were enormous as compared to today's specimens. Imagine a scorpion over 3 feet long crawling among the ferns—or a dragonfly the size of a small bicycle flying over the cycads! Cockroaches were small by comparison—*only a foot long*!

Important information about insects, pollen, and other small specimens can also be obtained by studying amber, or fossilized tree resin. As part of Jurassic Bugs, there will be a number of amber pieces on display, showing preserved insects, whole or in parts, dating to nearly 65 MYA.

March Morpho Mania™

Tuesdays through Sundays, 9 a.m. to 4 p.m.
Sponsored by Sachs Properties, Inc.

The third annual March Morpho Mania™ returns to the Butterfly House. Throughout the month of March, step inside the tropical conservatory to be immersed in more than 3,000 iridescent blue morpho butterflies in free flight, *ten times* the usual number!

"To be surrounded by this concentration of blue morphos is truly an awe-inspiring experience," says Joe Norton, director of the Butterfly House. "We don't know of anywhere else where you will encounter this many of these incredible butterflies at any one time. It's a month not to be missed!"

Throughout the month, visitors will learn about the critical role butterflies play in nature, and how the Butterfly House participates in conservation efforts in Costa Rica, the homeland of the morphos. Enjoy educational activities for all ages on different Costa Rican themes each weekend from 10 a.m. to 3 p.m. All activities are included with admission. Garden members receive free admission.

Spice up your life!

Sweet Bay
Herbal Cookery
From the Kitchens and Gardens of the
St. Louis Herb Society
HERB
VINEG
CURRY POWDER
THE SAVORYS
Rosemary
herbaria
pure pleasure

photo by Caroline Philippone

GARDEN
GATE SHOP.ORG

All proceeds benefit the Missouri Botanical Garden.

This spring the Garden Gate Shop will be featuring herbs for your garden as well as the award-winning *Herbal Cookery From the Kitchens and Gardens of the St. Louis Herb Society*. The book is full of wonderful new recipes that you will want to try. Until it's safe to plant your herb garden…our three-day herb sale is April 29–May 1…you can enjoy using our locally made herbal soaps and eating and cooking with our herbal jams, jellies, and vinegars. We also have a new line of herb-patterned serving dishes that are perfect for entertaining this spring and summer.

Seen at the Garden

Gardenland Express Members' Premiere | *Dec. 2, 2009*

Over 600 members brought children and grandchildren for this beloved night-time viewing of the annual holiday show. This year's show commemorated the Garden's 150th anniversary.

photos by Josh Monken, Charles Schmidt, and Christine Siebert.

The Thayer Family

Pat Raven, Leslie and Peter Sortino

Marian Herr

Robert and Carol Powell

Martha Kratzel, Alma Reitz, and Karen Fox

Steven and Jessica Krekeler, Donna and Ralph Korte, Janet and Greg Krekeler

Ellen and Selden Martin

Susan and Walt Rice and Gentry and Christin Stephens

Orchid Show Members' Premiere | *Jan. 28, 2010*

This year's Parisian-inspired orchid show drew over 500 members to the preview viewing. The colors, the fragrance, *c'est magnifique*!

photos by Josh Monken and Kyle Spradley

Charlene and Lyle Brizendine

Mary and Emile Wang, Jean and Roger Volk, John and Ann Bieller

Yumire, Luke, and Michael Turmelle

Ruth Ezell, Marie Stocker, Mary Ann Mordecai, and Marguerite Burns

photo by Kat Douglas

Tributes

October through December 2009

A tribute gift to the Garden is a wonderful way to honor family and friends. Tributes of $25 or more are listed in the *Bulletin*. If you have questions regarding giving opportunities at the Garden, please call (314) 577-0805. You can also make a tribute gift online at our website, www.mobot.org.

In Honor of

Mr. Connie Alwood
Ms. Jackie Juras

Mary Jo Anderson
Megan Schumacher and Leo and Jessica Reuther

Mrs. Phyllis Aronoff
Mr. and Mrs. David R. Smith

Mr. and Mrs. Clarence C. Barksdale
Mrs. Gayle J. Derouin

Dr. Donald Bassman
Mr. and Mrs. Rick Halpern

Mrs. Carol C. Bitting
Mrs. Audrey W. Otto

Mr. and Mrs. John A. Blumenfeld
Mr. John A. Blumenfeld, Jr.

Mr. and Mrs. Stephen Boyd
Mr. and Mrs. John F. McDonnell

Mr. and Mrs. William H.T. Bush
Mr. and Mrs. Bert Condie III

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Mr. Geoffrey Butler

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Drs. Glen and Leslie Holt

Mr. Michael Haub and Ms. Ashleigh Burch
Mrs. Margaret Chulick

Mr. H. James Hoeferlin
Mr. Derek Hoeferlin and Dr. Caron Hoeferlin

Mr. David Hults and Ms. Cindy Bornhop
Mr. Jason Hults

Ms. Evelyn Hunt
Drs. Glen and Leslie Holt

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Mr. Kenneth Manion
Mr. Gregory J. Cadice

Mr. Michael McLaughlin
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Mrs. Judy Doehring

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Missouri Botanical Garden
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Mrs. Frances Thompson

Mrs. Audrey W. Otto
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Drs. Glen and Leslie Holt

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Dr. and Mrs. E. Robert Schultz

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Mrs. Martin Stolar

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Mr. and Mrs. John E. Curby, Jr.
Mr. and Mrs. Charles Dill

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Mrs. Audrey W. Otto

Mr. and Mrs. Richard Wier
Dr. and Mrs. Cory Shaffer

Dr. Earl J. Wipfler, Jr.
Mrs. Lorraine Ruff

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AT THE WILLIAM T. KEMPER CENTER FOR HOME GARDENING

Terrace Café in the Kemper Center for Home Gardening is convenient to the Children's Garden and features a kid-friendly menu of sandwiches, snacks, pizza, and desserts. Open 10 a.m. to 3 p.m. weekdays and to 4 p.m. on weekends, April through October.

Enjoy a lunch at
Terrace Café this spring!

photo by Kat Douglas

Members' Entry Court

Bricks dedicated at the Garden,
October through December 2009.

Engraved clay bricks and signature bronze bricks are a wonderful way to commemorate any special occasion, as well as final memorials. For additional information regarding the Garden's brick program, please contact the Institutional Advancement Office at (314) 577-0291 or visit www.mobot.org.

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Orchid 2010 Show

through March 28.

March

Average temperature: low 36.2, high 53.4
Average precipitation: 3.6 in.

March Morpho Mania™. See page 22. BH

✿ *Thurs., Mar. 4*
Members' Event: Vegetable Gardening. Sessions at 11 a.m. and 6 p.m. See page 7. ST

✿ *Sat., Mar. 6*
Members' Event: New Member Orientation. Noon. ST

Tues., Mar. 9
Rainwater Harvesting class at the EarthWays Center. 6 to 8 p.m. $15. Call to register (314) 577-5140 or visit www.mobot.org/classes.

Thurs., Mar. 11
Native Plant School at Shaw Nature Reserve: Native Plant Propagation from Seed. 1 to 4 p.m. $12. Call to register: (314) 577-5140 or visit www.mobot.org/classes.

Mon., Mar. 15
"Luxuriance of Bulbs" lecture and booksigning by Anna Pavord, author of acclaimed bestseller, *The Tulip*. 1:30 p.m. ST

✿ *Thurs., Mar. 18*
Members' Event: March Morpho Mania. See page 7. 11 a.m., 12, 1 and 2 p.m. BH ☎

Sat., Mar. 20
Horticultural Therapy Awareness Day. 10 a.m. to 3 p.m.
Great Green Adventures: Bird-Friendly Gardens. 10:30 a.m. and 1:30 p.m. $3. CG

Sun., Mar. 21
Classic99's From the Garden—LIVE!® concert. Call (314) 725-0099 for free ticket information. Noon. ST.

Sat.–Sun., Mar. 20–21
EarthWays public tours: Rainwater Harvesting. 11 a.m., noon, 1 and 2 p.m. $3 (free for members). EWC

✿ *Sat., March 27*
Members' Event: Eggstravaganza. See page 7. CL

Book signing: Former St. Louis Post-Dispatch writer Mary King signs copies of her new book *Leaving a Trace*. 11 a.m. to 1 p.m. GGS

Sat.–Sun., Mar. 27–28
Greater St. Louis Daffodil Society show. RVC

Sun., Mar. 28
Last day of the 2010 Orchid Show.

Classic99's From the Garden—LIVE!® concert. Call (314) 725-0099 for free ticket information. Noon. ST.

April

Average temperature: low 46.5, high 66.7
Average precipitation: 3.69 in.

Thurs., Apr. 1
Tower Grove House, the Doris I. Schnuck Children's Garden, narrated tram tours, and the Terrace Café resume seasonal operations.

a missouri adventure
the doris I. schnuck children's garden

Thurs.–Sun., Apr. 1–4
The Children's Garden springs awake. See page 8.

Fri., Apr. 2
Arbor Day tree giveaway. The Kemper Center for Home Gardening will give away 400 tree saplings on a first-come, first-served basis, one per visitor. Master gardeners will answer questions and give advice on planting trees in the spring. 9 a.m. to 5 p.m. or while supplies last. KC

Sun., Apr. 4
Easter brunch at Sassafras. Seatings at 10:30 a.m., noon, and 1:30 p.m. $24.95 per adult, $11.95 per child ages five to 12; children under age five are free. Reservations required; call (314) 577-0200.

Fri.–Sun., Apr. 9–11
Summer bulb sale. GGS

Sun., Apr. 11
Classic99's From the Garden—LIVE!® concert. Call (314) 725-0099 for free ticket information. Noon. ST.

GREAT GREEN ADVENTURES

Sat., Apr. 17
Great Green Adventures: Celebrate Sakura. 10:30 a.m. and 1:30 p.m. $3. CG

Sat.–Sun., Apr. 17–18
Mid America Regional Lily Society sale. RVC

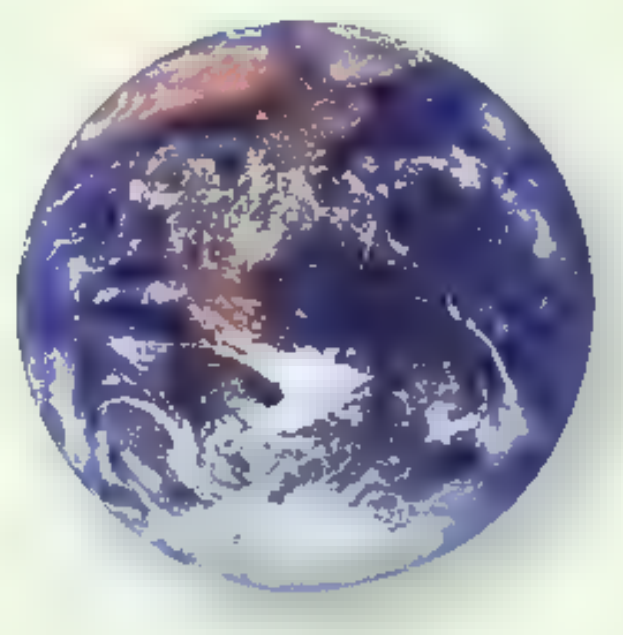
EarthWays public tours. 11 a.m., noon, 1 and 2 p.m. $3 (free for members). EWC

Sun., Apr. 18
Classic99's From the Garden—LIVE!® concert. Call (314) 725-0099 for free ticket information. Noon. ST.

Tale Travelers: a books-and-boots adventure (weather-dependent). 9:30 a.m. to 2 p.m. $5. SNR

Fri., Apr. 23
"The Significance of Floral Scents," the 2010 **John Dwyer Lecture** in Biology, given by Robert Raguso, Associate Professor, Department of Neurobiology and Behavior at Cornell University. 4 p.m. ST

Sat., Apr. 24
Earth Day. Learn how you can participate in a healthy future for planet Earth from the environmental organizations of Earth Share of Missouri. 10 a.m. to 3 p.m. Behind-the-scenes greenhouse tours at 10 a.m., noon, and 2 p.m. Live music on Spoehrer Plaza from 1 to 3 p.m.



Greater St. Louis Iris Society show. Noon to 5 p.m.

Sun., Apr. 25
Classic99's From the Garden—LIVE!® concert. Call (314) 725-0099 for free ticket information. Noon. ST.

Baroque Spring! A lively concert of baroque music features the Trio Primavera ensemble playing works by Bach, Marini, and Jacquet de la Guerre. Seating is limited. 3 p.m. $15. SP

"Advances from Woody Plant Breeding from a Garden Perspective," lecture and book signing by renowned horticulturist Dr. Michael A. Dirr, professor at the University of Georgia. 3 p.m. ST

On View in the Ridgway Visitor Center

through Mar. 14 | Costa Rica photography by Gregory Basco
March 14–May 23 | Fiber and multimedia art by Luanne Rimel
May 28–Aug. 15 | Prairie photography by Henry Domke

DINOQUEST

A TROPICAL TREK THROUGH TIME

LIMITED ENGAGEMENT!
MAY 1–OCT. 3

Admission: $9–$13 adults ($3 Garden members), $3 children ages 3–12 ($2 members' children).

DON'T MISS THE COMPANION EXHIBITION: JURASSIC BUGS AT THE BUTTERFLY HOUSE!

Thurs.–Sat., Apr. 29–May 1
Herb Days. Choose from a wide selection of potted fresh herbs, including new and hard-to-find varieties.

The St. Louis Herb Society's popular cookbook, periodicals, and curry powder will also be available. Society members will give demonstrations and guidance on selecting, planting, growing, and using herbs. 9 a.m. to 5 p.m. GGS, RVC

May

Average temperature: low 56.5, high 76.5
Average precipitation: 4.11 in.

Weekends in May
Wilderness Wagon Tours at the Shaw Nature Reserve. A narrated wagon ride departs the Visitor Center to travel the three-mile Trail House Loop Road, stopping at the Trail House and wetland bus stop. Departs on the hour at 1, 2, and 3 p.m. $1. SNR

www.plasticpot
recycling.org

Mon., May 3–
Thurs., Sept. 30
Plastic Pot Recycling. See page 8. MC

Tues., May 4 through
Wed., June 30
Power of Plants. View more than 40 original entries in the Garden's contest. *Sponsored by the Monsanto Fund.* RVC

Wed.–Fri., May 5–7
Hanging basket sale. GGS

Fri., May 7
National Public Gardens Day

Sat., May 8
Greater St. Louis Iris Society show. Noon to 5 p.m. RVC

Spring Wildflower Sale. See page 21. 9 a.m. to 4 p.m. SNR

🌿 *Sun., May 9*
Mother's Day brunch at Sassafras, the Garden's café. Seatings at 10 a.m., 11:30 a.m., and 1 p.m. $24.95 per adult, $11.95 per child ages five to 12; children under age five are free. Reservations required; call (314) 577-0200. $ ☎

✿ *Tues., May 11, 2010*
Members' Event: Rose Gardening. Learn how to keep your roses looking beautiful for the entire season. 11 a.m. ST and grounds

Sat.–Sun., May 15–16
Chinese Culture Days. See page 8. $

Fri., May 21
Young Friends: Climatron and Cocktails. 6 to 10 p.m. $30 ($15 for Young Friends' Garden members). Registration required: (314) 577-9570.

Sat., May 22
St. Louis Horticultural Society sale. RVC

Sat.–Sun., May 22–23
Children's gardening event. Teach your child how to plant vegetables, flowers, and fun! GGS

Bonsai Society of Greater St. Louis show and sale. RVC

✿ *Wed., May 26*
Members' Event: Rose Evening. See page 7. 6 p.m. Grounds.

Thursday, May 27
Tour Historic Kimmswick. See page 7. $☎

Sat., May 29
Gateway Chapter of the North American Rock Garden Society sale. RVC

Rose Society of Greater St. Louis show. Noon to 5 p.m. RVC

Key

BH	Sophia M. Sachs Butterfly House	LS	Little Shop around the Corner	ST	Shoenberg Theater in the Visitor Center
CL	Climatron lawn	MC	Monsanto Center	🌿	Sassafras
EWC	EarthWays Center	RVC	Ridgway Visitor Center	✿	Members-only event
GGS	Garden Gate Shop	SNR	Shaw Nature Reserve	☎	reservations required
KC	Kemper Center for Home Gardening	SP	Spink Pavilion	$	fee required

Visitor Information

Hours

- The Garden is open 9 a.m. to 5 p.m. every day except December 25.
- Outdoor walking hours begin at 7 a.m. Wednesday and Saturday

Admission

General admission: $8 ($4 for residents of St. Louis City and County); children 12 and under are free. Garden members receive free admission (based on level).

Children's Garden: $5 for children, adults admitted free. ($3 for Garden members' children). Members' children admitted free on Tuesdays.

Contact

Missouri Botanical Garden
4344 Shaw Blvd., St. Louis, MO 63110
(314) 577-5100 • www.mobot.org

EarthWays Center
3617 Grandel Sq., St. Louis, MO 63108
(314) 577-0220
www.earthwayscenter.org

Shaw Nature Reserve
P.O. Box 38 (Hwy. 100 off I-44)
Gray Summit, MO 63039
(636) 451-3512 • www.shawnature.org

Sophia M. Sachs Butterfly House
15193 Olive Blvd.,
Chesterfield, MO 63017
(636) 530-0076 • www.butterflyhouse.org

Shop

All proceeds benefit the Garden.

Garden Gate Shop
daily 9 a.m. to 5:30 p.m.
4344 Shaw Blvd., St. Louis, MO 63110
(314) 577-0865
www.gardengateshop.org

Little Shop around the Corner
Tues.–Sat., 10 a.m. to 4 p.m.
4744 Castleman Ave.,
St. Louis, MO 63110
(314) 577-0891 • www.littleshop.org

Gardening

Horticulture Answer Service
(314) 577-5143,
Mon.–Fri., 9 a.m. to noon

Plant Doctor
Walk-in service, Kemper Center,
Mon.–Sat., 10 a.m. to 3 p.m.

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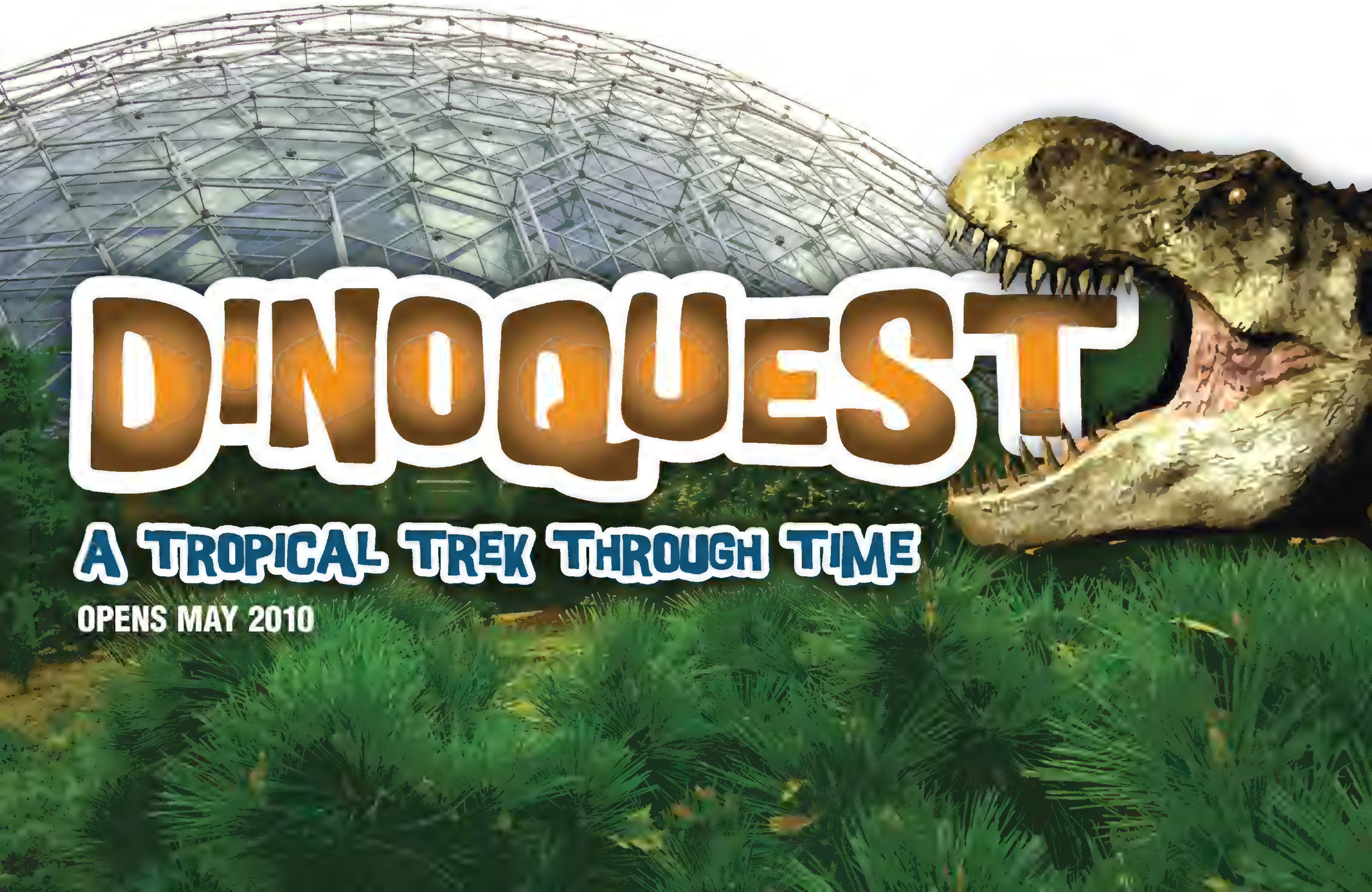
DINOQUEST
A TROPICAL TREK THROUGH TIME
OPENS MAY 2010

MISSOURI
BOTANICAL
GARDEN

bulletin

Summer 2010 Vol. 98, No. 3 www.mobot.org

photo by Kristi Foster

President's Comment

When physician and dedicated botanist George Engelmann began collecting and describing plant specimens from the American West, everything he encountered was a native plant. He was a trusted advisor to Henry Shaw in the planning of the Missouri Botanical Garden as an institution of scientific research and beautiful horticultural display. The specimens he added to the Garden's herbarium during his lifetime represent some of the earliest records of the flora of a region before it was altered by the hand of progress.

By studying the plants of the past, we can learn valuable lessons about the future. That's one of the goals of *Digitizing Engelmann's Legacy*, an initiative of the Garden's Center for Biodiversity Informatics to make 8,000 specimens and records from the Engelmann Herbarium available in electronic form online (see page 12).

By their very nature, native plants are some of the easiest to cultivate in your own garden. In this issue you can learn about the Shaw Nature Reserve's efforts to collect and promote these plants (see page 14), and find out which ones will work well in your home garden (see page 16).

Learning from the past is also part of the purpose behind *DinoQuest: A Tropical Trek Through Time*, now on display in the Climatron®. Studying how dinosaurs interacted with and were influenced by the prehistoric ecosystems in which they lived can teach us lessons about our own future. The most basic lesson is this: Life on Earth depends on plants for survival. As we observe the International Year of Biodiversity in 2010, it's important to realize our actions today can have lasting implications for future generations, and we must take steps now to preserve our planet's biodiversity.

Starting in September, Dr. Peter Wyse Jackson will spearhead these and other initiatives as the new president of the Garden. The selection process for my successor was an intensive, two-year search, and as I prepare to move into an advisory role as president emeritus, I am confident he will provide the skilled leadership necessary to see Henry Shaw's legacy well into the next decade.

Peter H. Raven

Dr. Peter H. Raven, *President*

To discover and share knowledge about plants and their environment in order to preserve and enrich life.

– mission of the Missouri Botanical Garden

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* *deceased*

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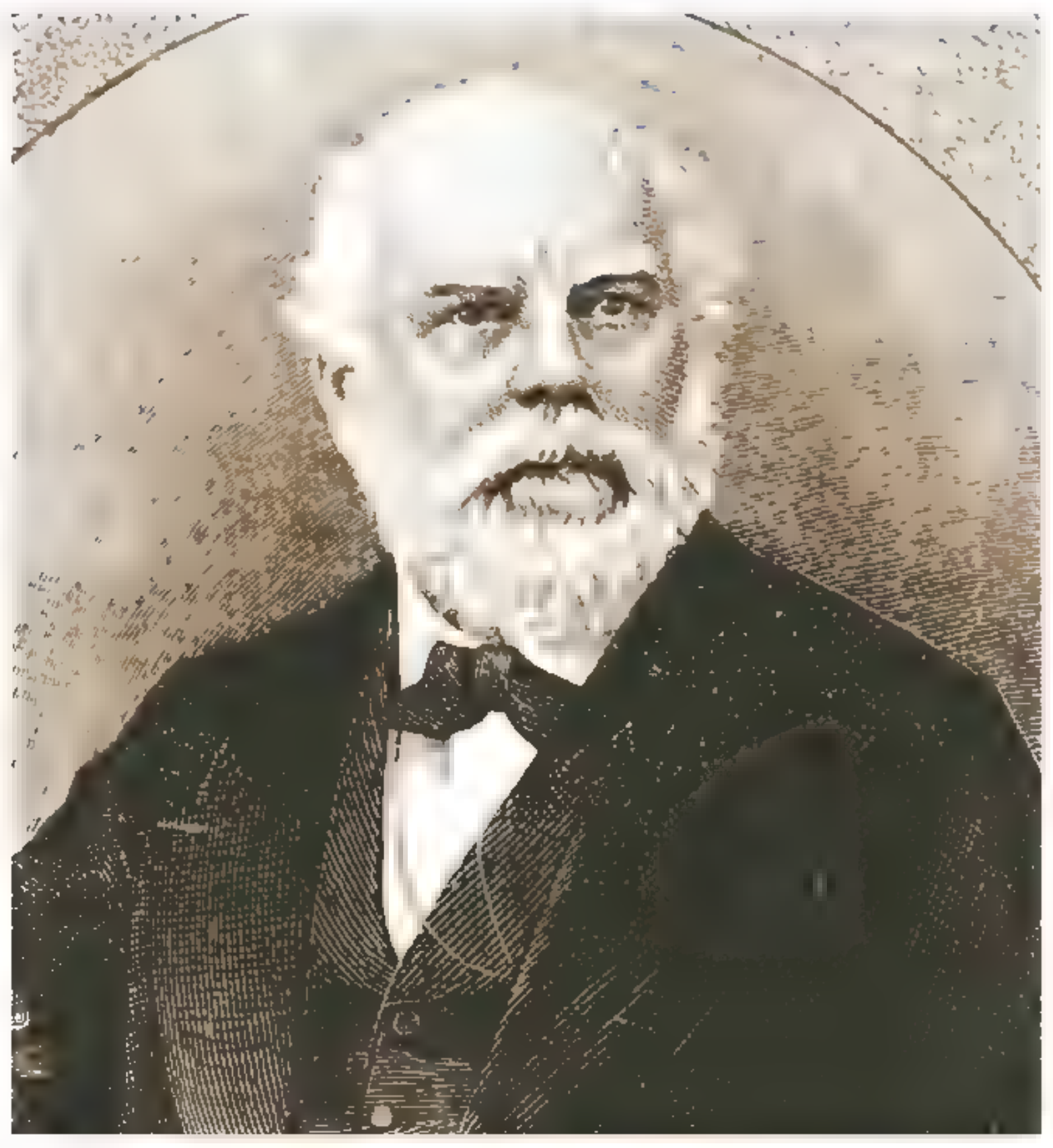
6–7

A Conversation with Dr. Peter Wyse Jackson

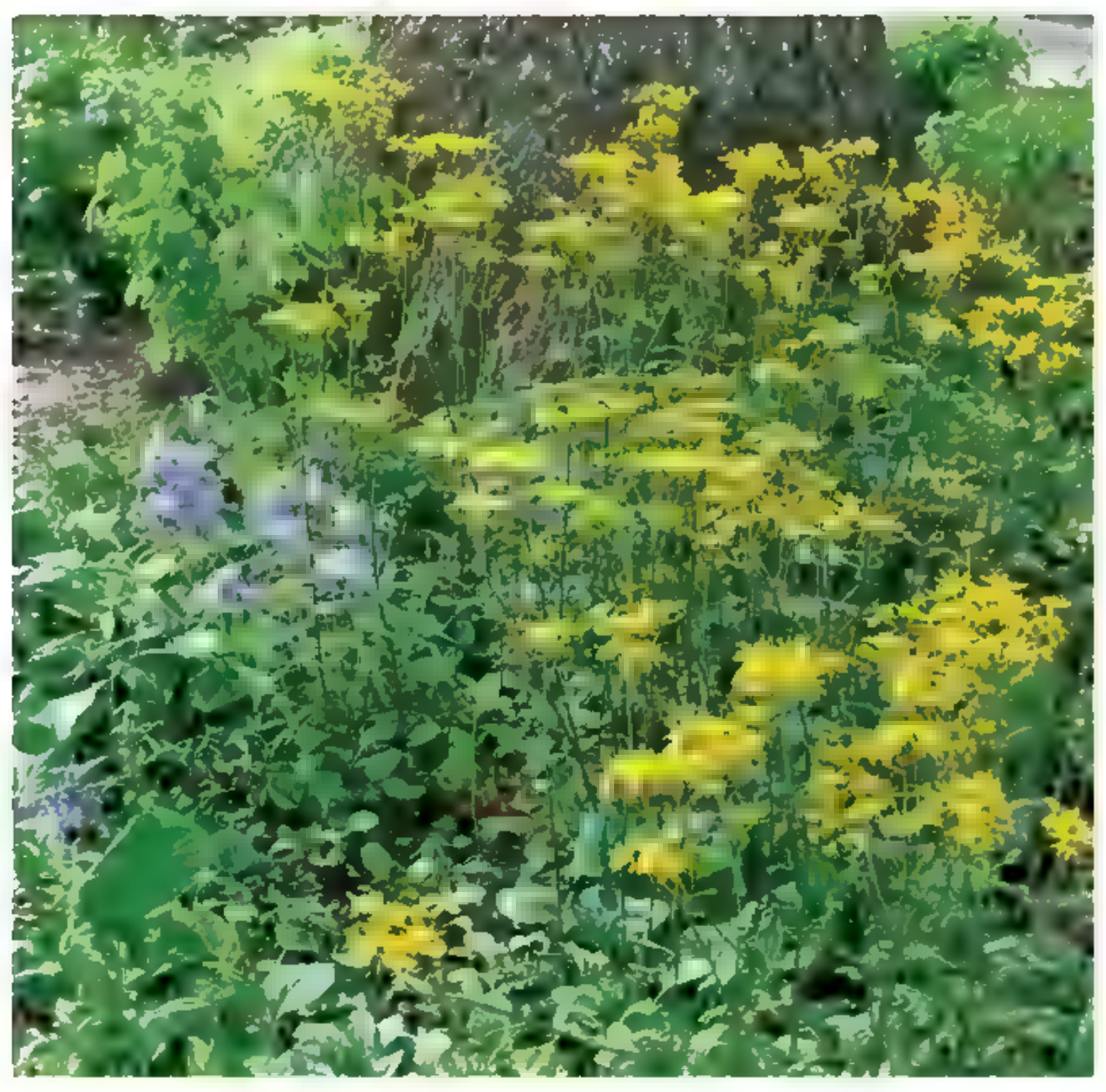
Incoming Garden president discusses his vision for the future



12–13

Digitizing Engelmann's Legacy

The Center for Biodiversity Informatics makes key herbarium specimens available online



14–15

Native Plants

Shaw Nature Reserve staff search the Ozarks

On the Cover:

Buttonbush (*Cephalanthus occidentalis*) is a native shrub common throughout Missouri.
Photographer: Leslie Wallace

Credits

Editor: Jeff Ricker
Designer: Ellen Flesch

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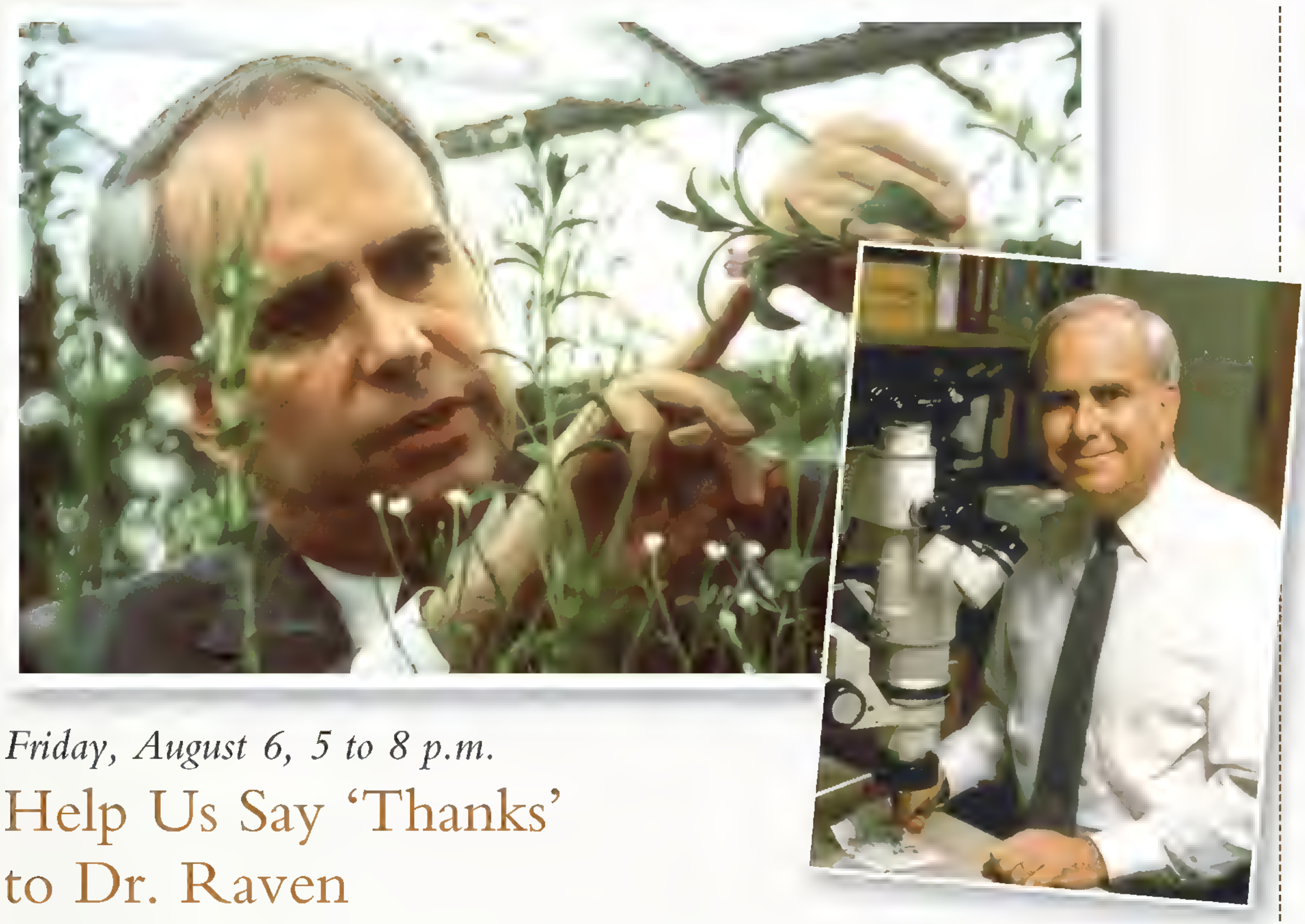


photos courtesy MBG Archives

Friday, August 6, 5 to 8 p.m.

Help Us Say 'Thanks' to Dr. Raven

The man who has led the Garden through nearly four decades of unparalleled accomplishment will retire soon, and you're invited to personally say thanks.

Dr. Peter H. Raven, Missouri Botanical Garden president since 1971, will retire on September 1, 2010. He will remain active at the Garden as a consultant through 2014.

Join us at the Garden to celebrate the highlights of Dr. Raven's tenure. Enjoy light refreshments and what will almost certainly be another lovely evening at the Garden. Reservations required; call (314) 577-0868.

You can honor Dr. Raven by contributing to the *Plant the Garden for Peter* tribute fund. Gifts will help the Garden continue to create and maintain beautiful natural settings that inspire environmental stewardship. Gifts of $25 or more will be acknowledged in the *Bulletin*. Go to www.mobot.org/plantforpeter. Questions? Call (314) 577-0805.

Dr. Peter H. Raven

Under Dr. Raven's leadership, the Garden's membership base has grown from 3,200 households to more than 37,000. The research staff has grown from five scientists to more than 150 working today in 38 countries. This 79-acre landscape has been transformed since Dr. Raven's arrival to include five internationally themed gardens and corner-to-corner, meticulously maintained horticultural displays.

Nearly one million people visit the Garden and its family of attractions each year. Among them are nearly 100,000 children whose imaginations are sparked through organized educational experiences and more than 2,500 math and science educators.

Dr. Raven is recognized as one of the world's leading botanists and advocates of conservation and biodiversity. He is noted around the globe as an advocate for preserving plant diversity in the face of deforestation, degradation, and global warming.

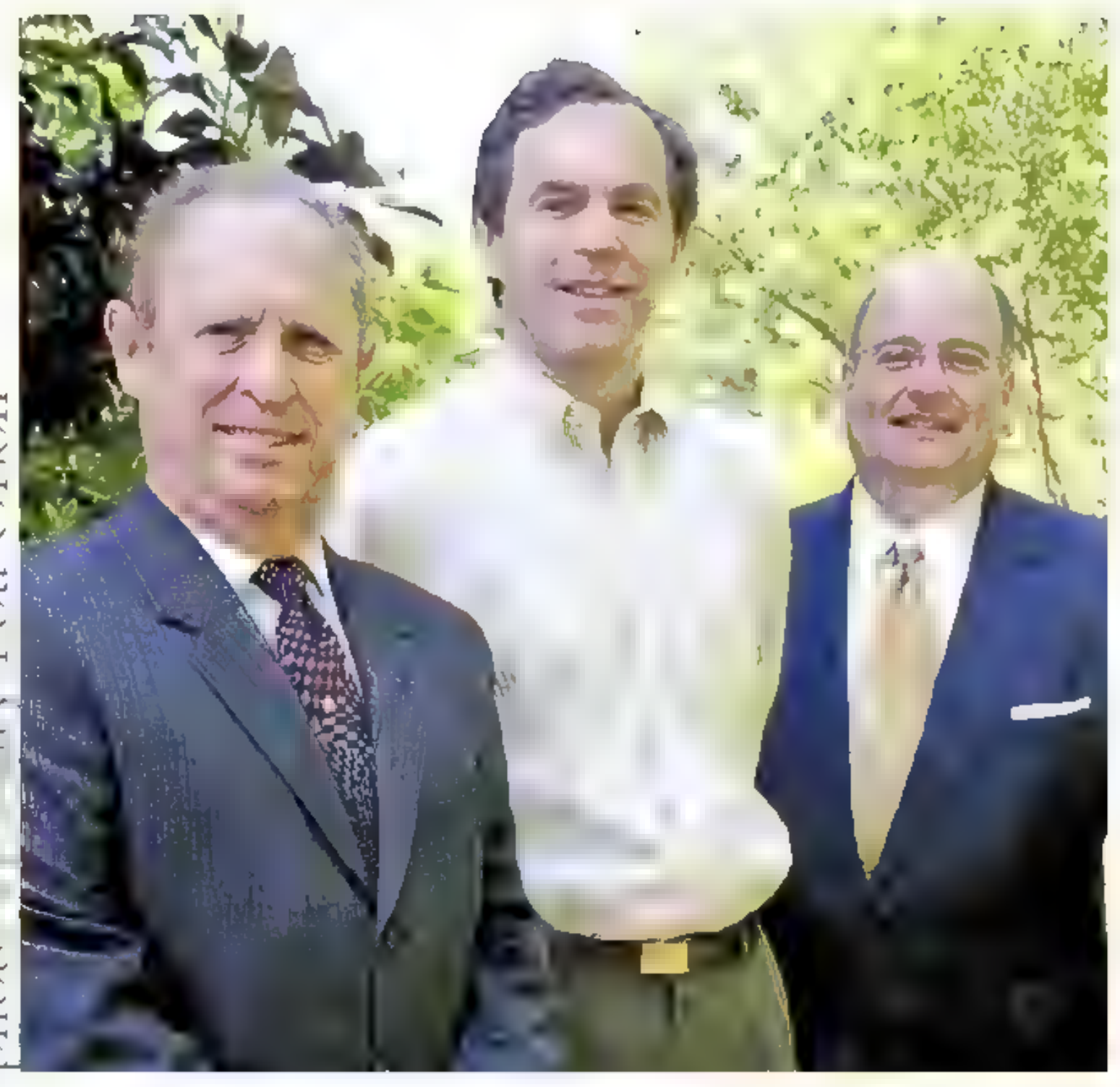


photo [illegible] Lou Olson

From left: Jerry Kluge (J.W. Terrill), Chris Schmidt (CSI Leasing), and Jeff Stuerman (Edward Jones). Not pictured: Dan Jay (Christner).

Corporate Council Appoints New Leaders

The Garden's Corporate Council welcomed new leadership in May.

Jeff Stuerman, President, Edward Jones Trust Company, will serve as Council chair. Leading the Council with him are Chris Schmidt, CSI Leasing; Jerry Kluge, J.W. Terrill; and Dan Jay, Christner.

"This is a hard-working and dedicated leadership group," said Sharon Mertzlufft, Senior Vice President of Institutional Advancement. "We welcome them, and we thank the team that built such an impressive foundation in the first years of the Council."

Pamela Jackson, Vice President of Technology for Emerson, served two years as founding chair of the Corporate Council. Also serving were Stuerman as Development Subcommittee chair; Karen Marino, SSE, Corporate Outreach Subcommittee chair; and the late Bill Croghan, Boa Corporation, Sustainability Initiatives Subcommittee chair.

The Council works with the Garden to reach out to the corporate community, provide workplace sustainability ideas, and expand Garden member benefits to Corporate Partners.

Seventy-two companies participate in the Corporate Partners Program, providing annual support to the Garden. Thirty-five of those companies have representatives on the Corporate Council.

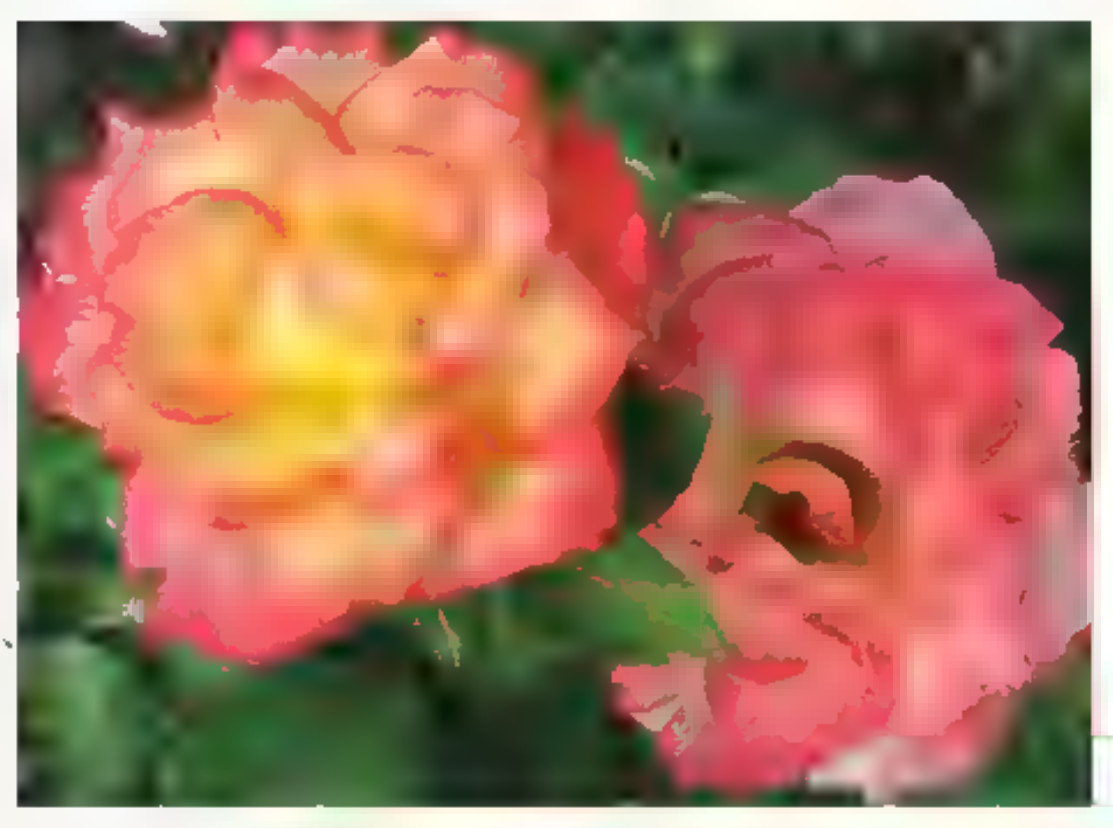
Become a Plant Parent

The Missouri Botanical Garden's new Adopt-A-Plant program is a great way for members and visitors to help further the Garden's mission.

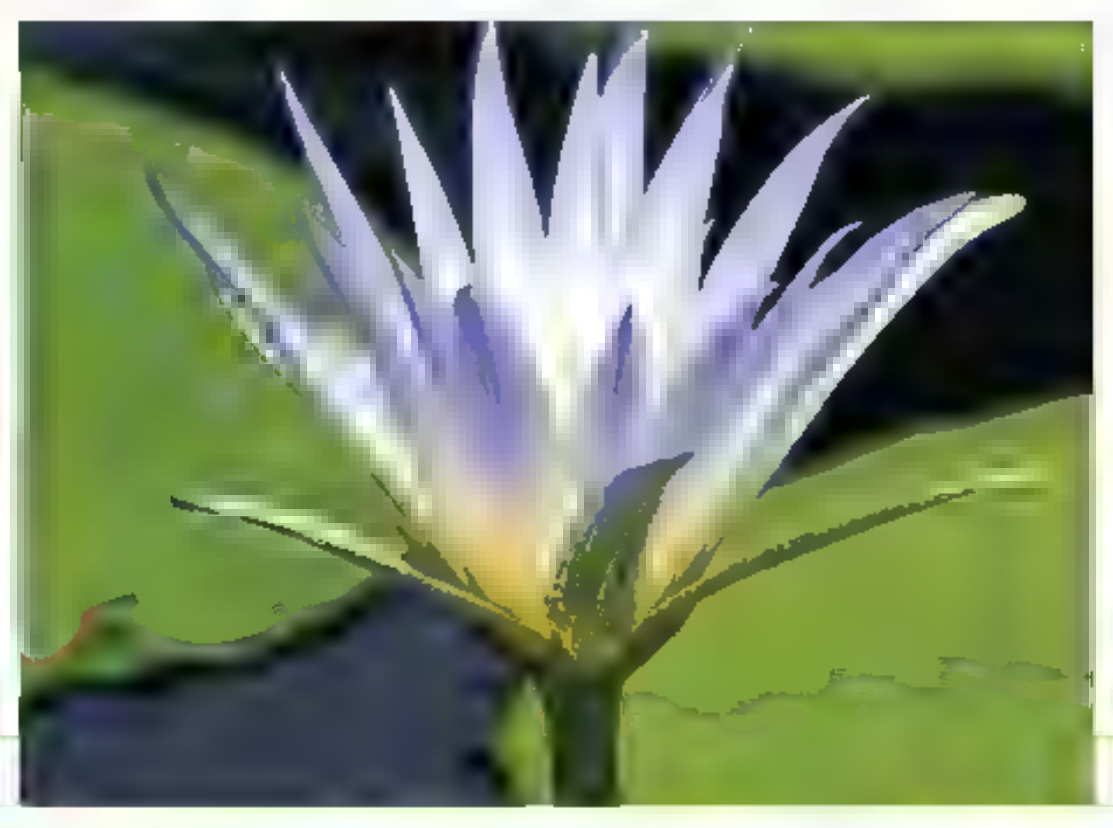
Plant Parents receive a certificate of adoption that includes a 5-by-7 image of the plant, suitable for framing, as well as additional information about the plant. Plant Parents also will have their names listed on the Garden's website each season.

Adopt a plant for $30, or upgrade to $40 and take part in a Garden walking tour featuring the adoptive plants.

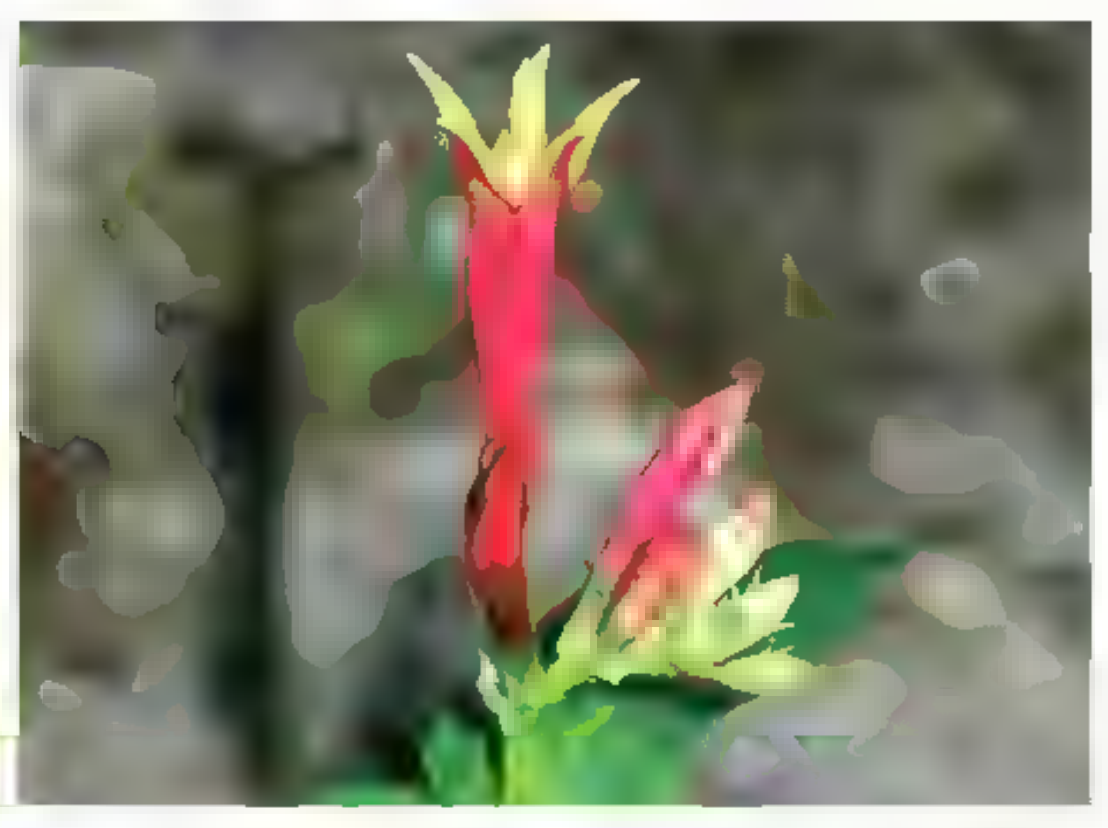
Adopt-A-Plant Selections for Summer 2010:



Rose



Water lily



Indian Pink

photos by Ashley Glenn, LeeAnne Gomes, and Mary Lou Olson

The Garden will introduce three new plants for adoption each season. For more information or to adopt a plant today, call (314) 577-5154.

Linnean House Closed for Renovation

The Linnean House will be closed to visitors from June through December while it undergoes repairs.

Built in 1882, this structure is the oldest continuously operating greenhouse west of the Mississippi River. Thanks to a generous gift from the Mabel Dorn Reeder Foundation, the Garden will make improvements such as a new all-glass roof, new windows, and much more.

The Linnean House is scheduled to reopen in January 2011. Watch the *Bulletin* for details about the reopening.

New genus named after Garden scientist

A new genus of Sapindaceae (the economically important soapberry family) endemic to Madagascar has been named after Missouri Botanical Garden scientist Roy Gereau. An article describing the genus, *Gereaua*, appeared in the latest issue of *Systematic Botany*, the scientific journal of the American Society of Plant Taxonomists.

Gereau is assistant curator in the Africa and Madagascar department at the Garden and director of the Tanzania Botanical Research and Conservation Program.

"Having my family name commemorated in a new genus is a significant honor of which I'm very proud," said Gereau. "At this point in the history of plant taxonomy, we are still discovering many new species, but we have few opportunities to name new genera."

photo by Caroline Philippone

From left: Steve Aylward, Marilyn Chryst, Pam Hardy, John Hensley, Dr. Peter Raven, Dennis Green, Pat Beuckman, Lou Stark (hidden), Fredric Rissover, Bill Lampe, Jim Young

Volunteer Appreciation Evening

Last year, the number of volunteers at the Garden increased to 1,880, contributing more than 151,600 hours of service—the equivalent of 78 full-time staff! The Garden could not operate at its current levels without the extraordinary efforts of these generous individuals and groups. Their service was celebrated April 19 at our annual Volunteer Appreciation Evening. Dr. Peter H. Raven presented special awards to the following outstanding individuals:

- Marilyn Chryst, Commitment Award
- John Hensley, Dedication Award
- Dennis Green, Extra Service Hours Award
- Jim Young, "Green" Award
- Steve Aylward, Rookie Volunteer of the Year
- Pam Hardy, Special Achievement Award
- Garden Docents, Organization Award
- Lou Stark, Lifetime Achievement Award

Thanks for another great year!

photo by Caroline Philippone

From left: Norma Williams, Arlene Nazzoli, Jackie Bainter, Barbara Huning, Mary Neher (hidden), Bill Lampe, Pat Beuckman, Bill Lamberton, Dr. Peter Raven, Edna Dependahl, Sandy Sher, Lynn Slackman (hidden), Fredric Rissover, Carol Swink, Virginia Noe, Adrienne Biesterfeldt. Not pictured: Carol Agatstein, Francine Boillat, Lucyann Boston, Jerry Buterin, Sue Butler, Ann Case, Leslie Clark, Roberta Dearing, Shirley Durfee, Joanne Fogarty, Joanna Gerst, Martha Gersten, Dan Gravens, Dorothy Hohenberger, Judy Horan, Sara Johnson, Donna MacDonald, Gloria Mills, Joanne Monti, Gale Murphy, Janne Niemoeller, Jerry Overman, Marge Petruska, Betty Salih, Todd Schroeder, Betty Smith, Dick Sokol, Pat Waling, Liza Wallis, Waz Wasileski, Bob Weinman.

photo by Dilip Vishwanat

Dr. Peter Wyse Jackson will succeed Dr. Peter Raven as president of the Missouri Botanical Garden on Sept. 1.

A Conversation with
Peter Wyse Jackson

Peter Wyse Jackson jokes that his Ph.D. on *Cochlearia* gave him excellent preparation for a career in management. The director of the National Botanic Gardens of Ireland and former Secretary General of Botanic Gardens Conservation International, Dr. Wyse Jackson will succeed Dr. Peter H. Raven as president of the Missouri Botanical Garden on Sept. 1. During a recent visit to St. Louis, he sat down to discuss his background, what he'll miss about Dublin, and what he's looking forward to accomplishing as head of the Garden.

How did you first become interested in plants?

I was probably 13 or 14 when I got into plants. I started out really as a bit of a bird watcher, but the birds were really irritating because they always flew away before I could get to them, whereas the plants stayed put. I was just driven by curiosity because I couldn't identify them. Coming from a family that had very diverse interests, we all tried to develop a line that was rather unique to ourselves, and botany was not something that anyone had ever been interested in. I suppose botany was something a little different, and I like being different.

Peter Wyse Jackson

Born in: Kilkenny, Ireland, June 7, 1955; second of five siblings

Married; with three children

Education: Ph.D., University of Dublin, 1984, on research in plant taxonomy (see sidebar)

Currently: Director of the National Botanic Gardens of Ireland; Chairman, Global Partnership for Plant Conservation

Previously: Secretary General, Botanic Gardens Conservation International

Given the effects of global climate change being felt already, and with so many plants at risk, how do you decide which ones to save?

The problem is we don't yet know which ones are going to be impacted by climate change, and I think that needs to become a key element of research. I did a preliminary assessment of the potential impact of predicted climate changes on the Irish flora and found that if the predictions are correct, Ireland will lose 25 percent of its flora by 2050.

But we don't yet have the experimental data to back that up properly. We also don't know what are going to be the drivers of loss, whether it's going to be changes in temperature, whether it's going to be changes in precipitation, changes in competition, changes in soils, changes in associations with soil microflora and fauna. We need to have fundamental answers to many of these questions before we can know exactly what's going to happen. Unfortunately, we don't have time to do all of this work, and we're going to have to come up with strategies to speed up the knowledge base for impacts of climate change on plants and ecosystems.

2010 is the International Year of Biodiversity. How would you like the Missouri Botanical Garden to convey that as a message to the public under your leadership?

The message is we need to celebrate biodiversity, but equally, we need to celebrate it with the knowledge that this is a time for action. There's not time for any complacency. The threats to biodiversity are rising, and are getting faster and faster as more and more habitats are being lost, and more and more pressures on biodiversity are being identified but not addressed.

Biodiversity conservation is not just for conservationists. We need public engagement in the issues. We need, for example, biodiversity to be incorporated into climate change strategies. It's not at the moment. We need everyone engaged in conserving and appreciating biodiversity.

What will you miss most about Dublin?

Family, because my mother and mother-in-law are both elderly and living in Dublin, but we will be regular visitors there. We still have our cottage in the west of Ireland, in County Kerry on the Dingle Peninsula. One of my other great interests is antiques, and I will miss browsing around the Dublin antiques shops.

One of the things I'm really looking forward to is the fact that the Garden is such an important botanical center, so it's going to be possible to enhance my global biodiversity policy interests here. Being chairman of the Global Partnership for Plant Conservation, there's a lot more that I'll be able to achieve here than I could in Dublin.

About Cochlearia

The subject of Dr. Peter Wyse Jackson's Ph.D. thesis, *Cochlearia* is commonly called scurvy grass and is a genus of about 30 species in the Brassicaceae family (which includes cabbages and broccoli). Commonly found in coastal regions, high cliffs, and salt marshes, its leaves are rich in vitamin C and in the past were eaten by sailors suffering from scurvy after long voyages. The leaves have a strong, peppery taste.

DINOQUEST

photo by Jeff Ricker

Through October 3
Admission: adults $9–$13; children (3–12) $3. Members $3; members' children (3–12) $2. Members receive free admission all day Tuesday.

Dinosaurs have invaded the Climatron®! Journey back to the golden age of these amazing creatures as you view 18 lifelike installations of dinosaurs and other reptiles frozen in time amid the tropical rain forest setting. Continue the discovery in the Brookings Interpretive Center, where you can view a 65-million-year-old sandstone slab containing hundred of fossilized bones, consider science fact vs. fiction, and learn more about the important connections between living creatures and Earth's ecosystems past, present, and future. Learn more and buy tickets online at www.mobot.org/dinoquest.

The Garden thanks sponsors Cardinals Care, Charles and June Gallagher, Insituform Technologies, Inc., Macy's, Cheryl and David Morley, and an anonymous donor.

JURASSIC DARK

Thursdays through September, 6 to 10 p.m. (last entry 9:30 p.m.), Climatron and grounds
Bring your family to experience DinoQuest after hours with dramatic lighting, sound, and fog. Enjoy face painters, balloon artists, and more, including admission to the Doris I. Schnuck Children's Garden until 8 p.m. Admission is $9 adults, $7 children (3–12), $5 Garden members, $3 members' children.

DinoQuest Fossil Road Show

Sunday, July 11, 10 a.m. to 4 p.m., Ridgway Visitor Center
Included with Garden admission
Dig out those fossils you've been wondering about and bring them to the Garden! Our team of paleontology buffs led by Guy Darrough, creator of *DinoQuest: A Tropical Trek Through Time*, will identify your geologic treasure.

DinoQuest Monster Movie Night

Friday, July 30, Garden and exhibit open at 7 p.m., movies begin approximately 8:30 p.m. Last entry 10 p.m. $10; $5 members
Grab your blanket and head to Cohen Amphitheater to experience the chills and thrills of larger-than-life movie monsters under the stars! Film classics *Mothra* and *Gamera vs. Guiron* begin at sundown; come early to view our temporary resident monsters of *DinoQuest: A Tropical Trek Through Time* in the Climatron. Picnics allowed; snacks and beverages available for purchase on site.

whitaker MUSIC FESTIVAL 2010

Wednesday evenings, June 2 to August 4
It wouldn't be summer in St. Louis without music under the stars at the Garden! Concerts take place at Cohen Amphitheater just west of the Climatron®. Bring your own lawn chairs or blankets, and pack a picnic! (Please leave the barbecue grills and the pets at home, however.) Picnic fare and beverages including beer, wine, and soda will be available for purchase on site.

For the complete concert schedule and more information, visit www.mobot.org/events/whitaker.

Wednesday evening admission is free after 5 p.m. Music begins at 7:30 p.m., and last entry is at 9 p.m. The Doris I. Schnuck Children's Garden also remains open until 7 p.m. on Wednesday evenings, with free admission after 5 p.m.

The festival is funded by the Whitaker Foundation, which supports St. Louis arts and parks to promote common heritage, celebrate diversity, and encourage vitality within the community.

Illinois Appreciation Week

June 6–12
Illinois residents receive half-price Garden admission (a $4 value), a 10 percent discount in the Garden Gate Shop, and a 20 percent discount off new or gift memberships this week.

HEALTHY YOU HEALTHY PLANET FESTIVAL

Saturday, July 17,
9 a.m. to 4 p.m.
Included with Garden admission
Presented by the Missouri Botanical Garden and the Siteman Cancer Center at Barnes-Jewish Hospital and Washington University

Learn how to live a healthy, green lifestyle and participate in St. Louis' Biggest Stretch. Learn about healthy cooking habits, ways to prevent diseases, and the amazing power of plants through expert-led talks. Experts will also offer free health screenings and information about traditional remedies and the healing arts of horticulture therapy. St. Louis Children's Hospital will offer face painting and healthy activities for children in the "Kids Corner."

Happy Birthday, Henry!
Saturday, July 24, 10 a.m. to 3 p.m., Spoehrer Plaza
Come celebrate Garden founder Henry Shaw's 210th birthday today, when admission to the Garden is free from 9 a.m. to 5 p.m.

Save the Date

photo by Lauren Kirkwood

Japanese Festival
Labor Day Weekend, Sept. 4–6
Celebrate the history, culture, and people of Japan at the Garden's annual festival, one of the largest and oldest of its kind in the United States. Take in the lightning-fast drama of a sumo match, thunderous taiko drums, fashion shows, flower arranging, martial arts, and anime screenings. Stroll through the Japanese Garden by candlelight. Browse the marketplace for Japanese souvenirs or the food court for green tea ice cream.
Admission: $15 adults, $10 seniors (65+), $5 Garden members and children 12 and under. Avoid the lines and buy your tickets online at www.mobot.org/tickets.

With sponsorship by Novus International, Inc.

Just for members

photo by Paul Straatmann

Musical Evening | *Friday, June 11*
6 p.m., Spoehrer Plaza, Garden grounds
Bring a picnic, your lawn chairs and blankets, and enjoy a night of big band music under the stars. Dance the night away with the swinging sounds of the Gateway City Big Band. Limited seating available on a first come, first served basis. Free for Garden members and their guests. *No picnics allowed prior to 5 p.m.*

photo by Paul Straatmann

Midsummer Night's Dance |
Friday, June 18, 6 to 10 p.m., Spink Pavilion
Spend an enchanted evening at the Garden. Enjoy fresh, summery dishes, great drinks, and dancing under the stars. $60 Garden members, $70 nonmembers. Advance reservations required: (314) 577-9570 or www.mobot.org/membership. For more information call (314) 577-5154.

Family Picnic | *Friday, July 9, 6 to 9 p.m.*
Bring your picnic basket and join hundreds of members and their families for an evening of crafts, face painting, entertainment, and more. Free for Garden members and their guests. Advance reservations required: (314) 577-9570. For more information call (314) 577-5154.

photo by Beth Haines

Members' Day: Water Gardening *
Wednesday, Aug. 11, 10 a.m., Shoenberg Theater
Join Master Gardener Bill Ziegenbein to learn what to do and what not to do in your home water garden. This informational tutorial will remove the fear and encourage you to get your feet wet. Free for Garden members and their guests.

Celebrate Membership Weekend | *Saturday–Sunday, August 21–22*
Celebrate membership with the five cultural institutions making up the Metropolitan Zoo-Museum District (ZMD)—the Missouri Botanical Garden, the Missouri History Museum, the Saint Louis Art Museum, the Saint Louis Science Center, and the Saint Louis Zoo. Present your Garden membership card at any of the attractions above, and you'll receive discounted or free entry to exhibitions, plus discounts on food, gifts, and membership!

Young Friends' Be A Kid Again | *Friday, Aug. 27, 6 p.m., Doris I. Schnuck Children's Garden*
Join the Young Friends of the Missouri Botanical Garden for an adults-only party in the Children's Garden complete with appetizers and a cash bar. Ages 21 and up. $15 for Garden members, $30 nonmembers. Advance reservations required: (314) 577-9570 or www.mobot.org/membership. For more information call (314) 577-9532.

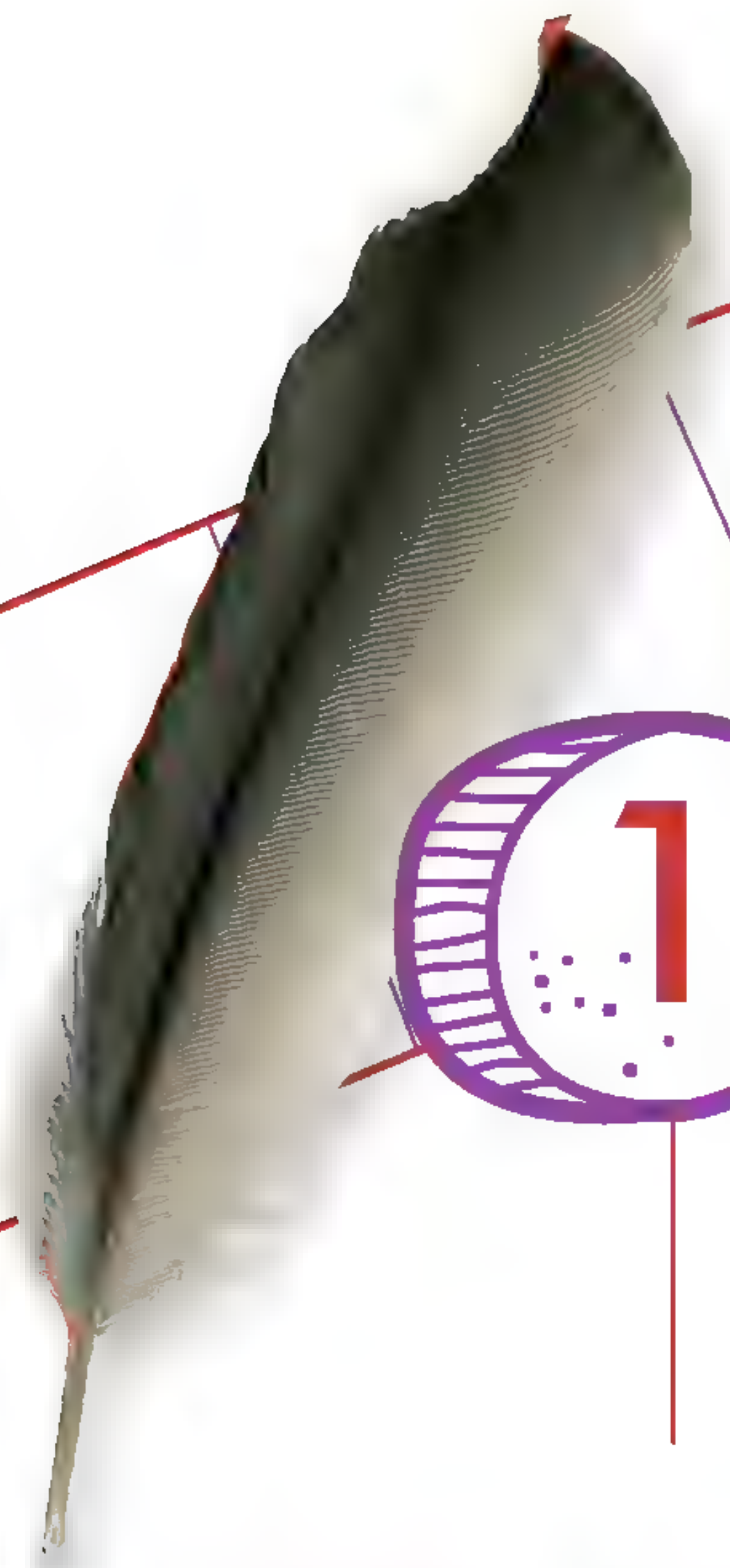
**** All Members' Events are free for members unless otherwise noted. On these days, members also enjoy discounts of 10 percent in Sassafras and the Terrace Café and 20 percent in the Garden Gate Shop, Little Shop around the Corner, and the Madame Butterfly Gift Shop at the Sophia M. Sachs Butterfly house.***

GET OUT!

Top 10 Tips for Summer Play

School will soon be out for the summer, and if you're already dreading how you're going to keep the kids occupied for the next three months (once they've gotten bored with the video games, the TV, and the computer), the answer is as close as the front door. Head outside and explore your world!

photo by LeeAnne Gomes



1. GO ON A NATURE SCAVENGER HUNT.

With your child, list 10–20 objects found in nature, like acorns, feathers, heart-shaped leaves, or yellow flowers. Together, search for as many objects as possible—see how long it takes in your backyard, your neighborhood park, or any natural area you want to explore.

2. IGNITE THE SENSES!

Blindfold your child and then carefully walk them to a tree. Ask them to feel the bark, to hug the tree to see how big it is, and if the tree smells. Walk them back to a central location, remove the blindfold, and ask them if they can find the tree again. Visit the Missouri Botanical Garden to introduce your child to some incredible "State Champions." The Garden is home to Missouri's largest possumhaw and white basswood trees—look for the special blue signs when you visit!

3. KEEP A FAMILY BACKYARD JOURNAL.

Keep a notebook by the back door and encourage your family to track what's happening in your own backyard. Simply record the date and what you see or add details and drawings.

4. A CHILD'S POINT OF VIEW.

Plan a nature walk and then hand over the camera to the kids. Encourage them to take lots of pictures and then talk about what they saw. With 13 miles of trails, the Shaw Nature Reserve is a great place to plan a day hike.

5. INSECT SAFARI.

Search your own backyard to see who can find the most extreme insects. Talk with your child about handling these critters with care and returning them to where they were found. Experience insects up close all summer long at the Sophia M. Sachs Butterfly House.

6. BACKYARD WEATHER STATION.

Install a simple weather station in your backyard. You may choose to include a thermometer, rain gauge, wind sock/weather vane, anemometer (for measuring wind speed), or a hygrometer (to track relative humidity). Encourage your family to record the weather on a regular basis.

40 60 80
230 250 270

7.

100-MILE PICNIC.

Plan a waste-free, seasonal picnic using foods from your garden or a local farmer's market. Serve only food that comes from less than 100 miles of your home and talk about how reducing transportation of food can help the environment. Visit the EarthWays Center to learn more about reducing your family's impact on the environment.

8.

GO FISHING.

On Saturday, June 5, participate in "First-time Fishing for Kids" (ages 6–12) at the Shaw Nature Reserve. Fishing is not normally allowed at the Reserve, but this special one-day event—held in partnership with the Missouri Department of Conservation—provides a special fishing experience for first-time or inexperienced anglers. Equipment, bait, and expert assistance provided! Visit www.shawnature.org to learn more.

10.

EXPERIENCE A FAMILY SLEEPOVER IN THE GREAT OUTDOORS!

On June 26–27, join fellow families across the nation to participate in the "Great American Backyard Campout," celebrating the great outdoors and encouraging families to reconnect with nature and each other. Visit www.nwf.org/BackyardCampout to learn more.

9.

BUILD A FORT.

No need for fancy materials here—gather old blankets, abandoned firewood, or a lawn chair and create an inspirational outdoor place for the imagination to run wild.

photo by Jessica Kester

Nadia making plarn (plastic yarn) during last summer's Earth-wise Camp.

CAMP MBG

by Sheila Voss, Vice President of Education

In July, 9-year-old Nadia will return for a third summer of Camp MBG, the program designed to get kids out and about in the Garden—exploring the world, making new discoveries (and friends), and connecting with nature. Here's what Nadia had to say about the Garden's summer programs:

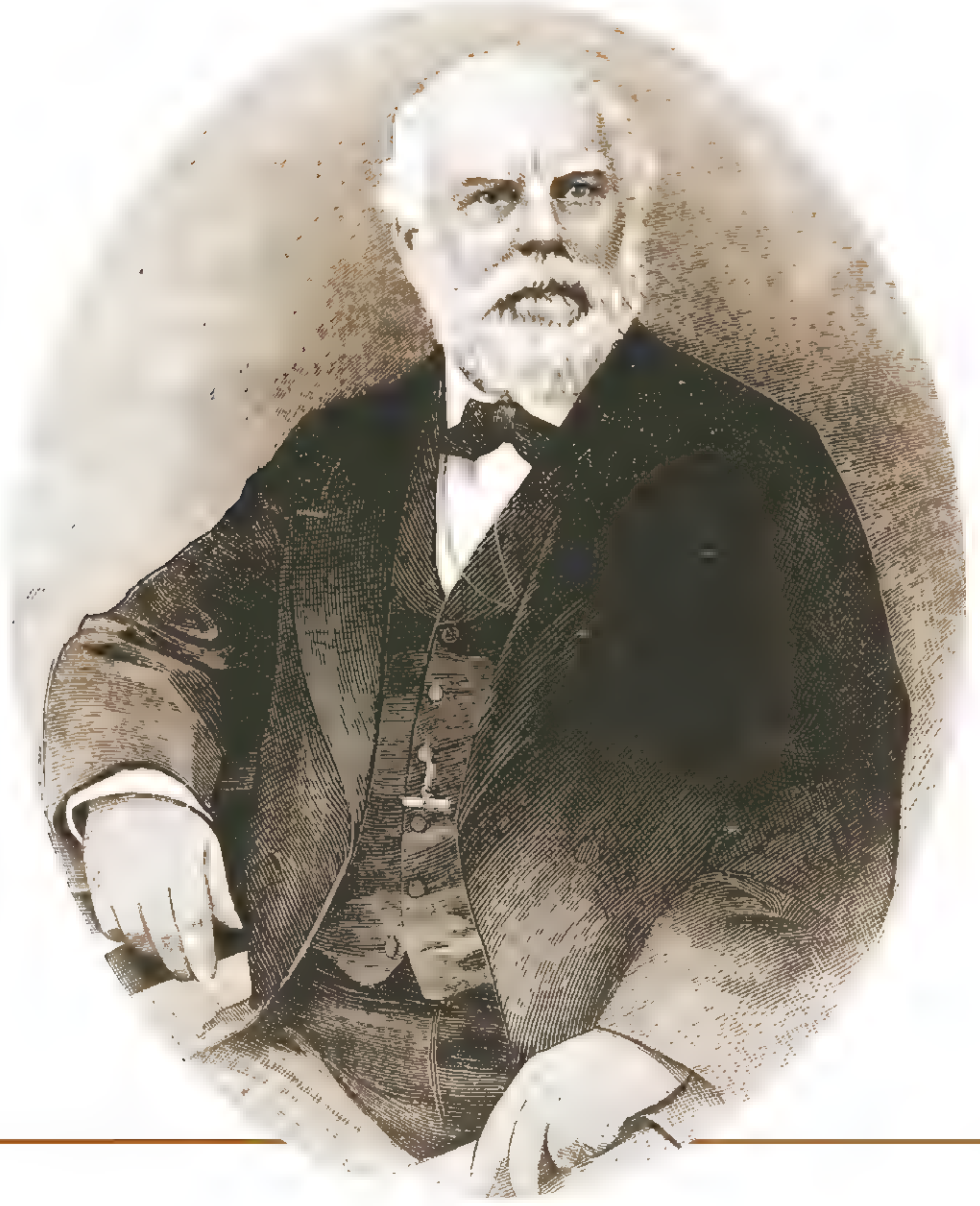
What did you like about Camp MBG?

I like the variety of activities we do during the week. We have studied things in every area of the Garden, including Mr. Shaw's house. The teachers are really nice and encourage us to try new things, like dried cantaloupe.

What did you learn during Camp MBG?

We learned how to do a real research project starting with making our hypothesis, then testing our hypothesis, and presenting our information to others. This year we did a research project in school, and I already knew how to do it. One of the most important things we've learned about is how to protect our earth by "reducing, reusing, and recycling." It really encouraged my family to start recycling. I also try to remember at school and not use so much throwaway stuff when I make my lunch. I will use this information for the rest of my life.

To learn more about Camp MBG 2010, visit www.mobot.org/classes.



DIGITIZING ENGELMANN'S LEGACY

When Dr. George Engelmann moved from Germany to the frontier town of St. Louis in the 1830s, the physician brought with him a lifelong love of botany. Settled on the edge of a largely unexplored wilderness, Engelmann spent a great deal of his life, particularly his later years, studying and describing the flora of western North America.

In 1856, Henry Shaw sought out Dr. George Engelmann, a respected botanist and founder of the St. Louis Academy of Sciences, for advice and assistance on planning his botanical garden in St. Louis, particularly the scientific components.

After his death in 1884, Engelmann's botanical collection of about 100,000 specimens was given to the Missouri Botanical Garden. Now, thanks to a $146,600 grant from the federal Institute of Museum and Library Services (IMLS), the Garden will digitize and create an online public display of some of the plant specimens from the Engelmann Herbarium.

The approximately 8,000 specimens to be digitized were gathered during pioneering expeditions into the American West following those of Lewis and Clark. They are among the first scientific records of the plants growing in the vast wilderness west of the Mississippi River. The collection forms some of the earliest verifiable documentation of species occurrences in that pristine region, before the rapid migration west permanently altered the landscape through human introduction of non-native invasive species. These specimens will provide a historic complement to the 3.7 million specimens already accessible through Tropicos at www.tropicos.org.

"These specimens are incredibly important because they are among the first scientific documentation of plant species in the American West and Mexico," said Chris Freeland, director of the Garden's Center for Biodiversity Informatics. "These specimens provide a baseline understanding of the species diversity within the United States and can be used to guide conservation practices and land use management policies today. And, through generous funding from the IMLS, we're now able to prioritize their digitization and free online publication for a global audience of scholars, students, and citizen scientists."

In many cases these specimens document the first collection of species new to science and illustrate their historical distribution in what is now the United States and Mexico.

The specimens have been part of the Garden's herbarium since Engelmann's death but are only now being digitized. Since the early 1980s, as new specimens have been collected—primarily from the tropics and other biodiversity hot spots like southeast Madagascar and southeast Asia—they have been immediately added to Tropicos. These undigitized "legacy" specimens represent collections made before the Garden's streamlined data entry process. The time required to locate them among the Garden's collection of more than six million objects has made the cost of finding and digitizing them prohibitively expensive. The funds from IMLS have helped to offset this endeavor.

Freeland says that once the specimens are digitized, it will be interesting to see what conclusions can be drawn by comparing historic distributions to contemporary ones, as well as other applications that may currently be unforeseen. "While we may not have all the answers, by making them available we can engage other scientists and historians who can include them in their own research and expand upon this 'grunt work' that we've completed through IMLS funding."

Digitization of the collection is under way and should be completed by October 2010.

Agave wislizeni, *one of the 8,000 specimens in the Engelmann Herbarium currently being digitized.*

A Sample from the Engelmann Herbarium:

CORAL BELLS

Heuchera sangiunea *from the Engelmann Herbarium.*

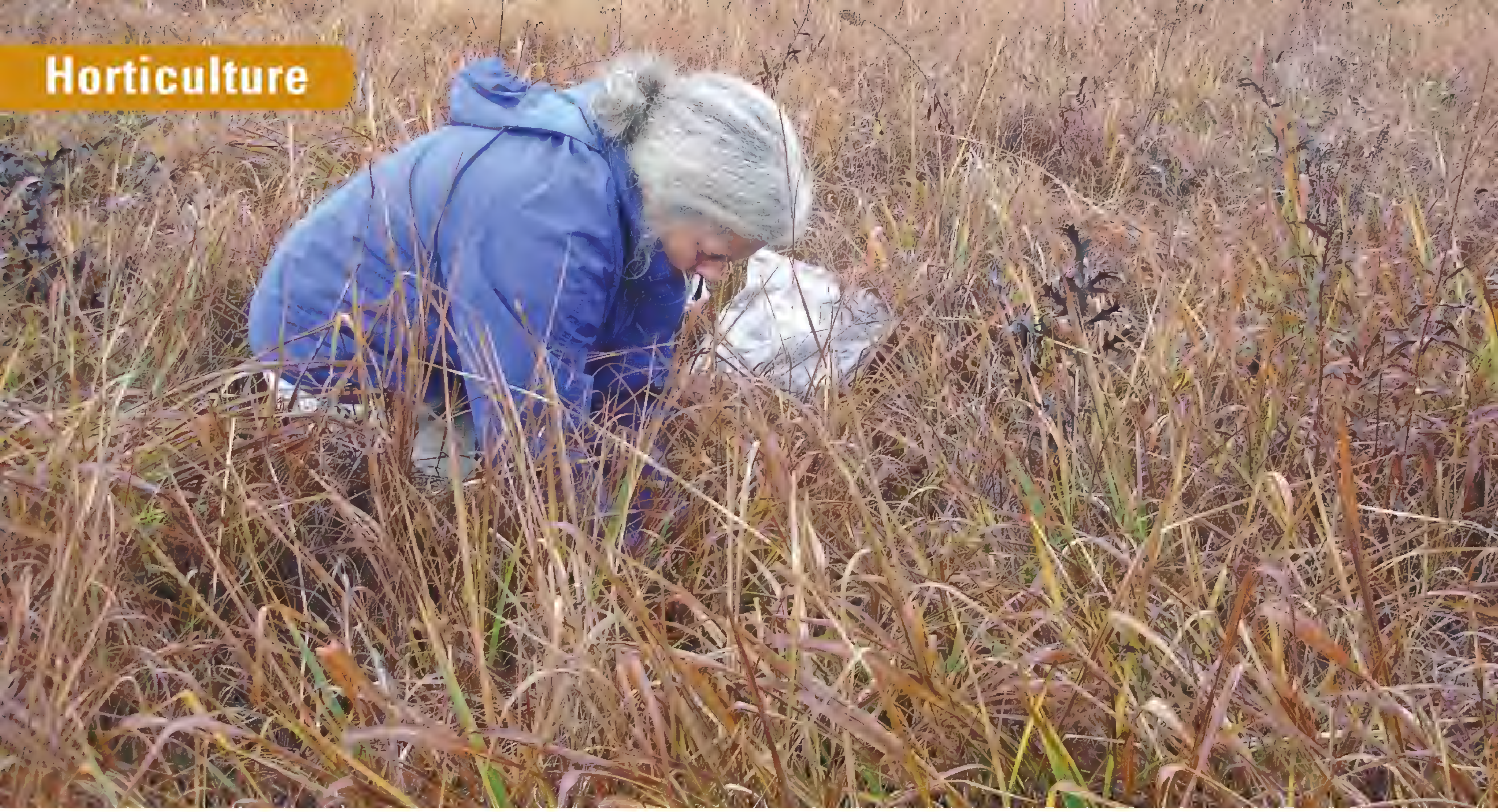
Coral bells (*Heuchera sanguinea*) are a popular ground cover in St. Louis gardens. These crimson flowers, native to the western United States and Mexico, were first collected and described by F.A. Wislizenus, an amateur botanist who also happened to be George Engelmann's colleague in his medical practice. On a collecting expedition to Mexico in 1846, Wislizenus reported seeing this plant growing in "mountains, rocks, at Llanos near Cosiquiriachi" and sent it back to Engelmann in Missouri, who used the specimen in 1848 to describe the plant. The Engelmann Herbarium specimen represents the first scholarly identification of this species.

ABOUT THE CENTER FOR BIODIVERSITY INFORMATICS

Digitizing Engelmann's Legacy is one of several projects by the Missouri Botanical Garden's new Center for Biodiversity Informatics, which works to make biodiversity information available to science scholars around the world.

A new field, biodiversity informatics is the creation, integration, analysis, and understanding of information regarding biological diversity. The establishment of this new center recognizes the Garden's growing role as a pioneer in life science information systems, which began in the 1980s with Tropicos, the world's largest database of plant information. The center has been funded by $3.9 million in grants and contracts from federal agencies and private foundations.

Chris Freeland, director of the Center for Biodiversity Informatics, is also global technical director for the Biodiversity Heritage Library, a consortium of natural science libraries worldwide working to digitize the world's biodiversity literature and provide open access to it over the Internet.



Shaw Nature Reserve horticulturist Diane Donovan collects seed at Baker Prairie near the Missouri/Arkansas border.

The Search for Landscape Plants in the Ozarks

by Scott Woodbury and Cindy Gilberg

Remote sink-holes, craggy bluffs, and soggy river bottoms may seem like unlikely places to find new plants for landscaping, but such places tend to put plants to the ultimate test. Scouring floods, summer drought, and erratic temperatures often generate tough plants that work well in the modern landscape.

Take, for instance, the Ozark alumroot (*Heuchera villosa* var. *Ozarkana*). In 2009, Shaw Nature Reserve horticulture staff collected seeds of this species from wild populations in the southern Ozarks. Found on shaded bluffs growing out of rocky crevices, one can assume a high level of drought and shade tolerance. Since other Missouri species of alumroot are long-lived, compact, and low-maintenance garden plants, there is a good chance that this species is as well. If the Ozark alumroot proves to be as garden-worthy as its close cousins prairie alumroot, American alumroot, and little-flower alumroot, then it will be given a prominent place in the Whitmire Wildflower Garden, and efforts will be made to produce and promote it for public use.

Reserve horticulture staff have been searching for species new to horticulture for decades, mostly in eastern Missouri but more recently in the bootheel, southern Ozarks, and western Missouri. Last year's trip set its sights on southwest Missouri and northwest Arkansas. With Theo Witsell (botanist for the Arkansas Natural Heritage Commission) as our guide, collection began at the Kings River Falls Natural Area near the 1921 Dripping Springs schoolhouse. A few of the species collected were Arkansas alumroot (*Heuchera villosa* var. *arkansana*), two viburnums (*V. rafinesquianum* and *V. recognitum*), Arkansas bedstraw (*Galium arkansanum*), marginal shield fern (*Dryopteris marginalis),* and umbrella magnolia *(Magnolia tripetala*). This is the most northerly population of umbrella magnolia in our region, and it may prove to be a hardy ecotype for St. Louis gardens.

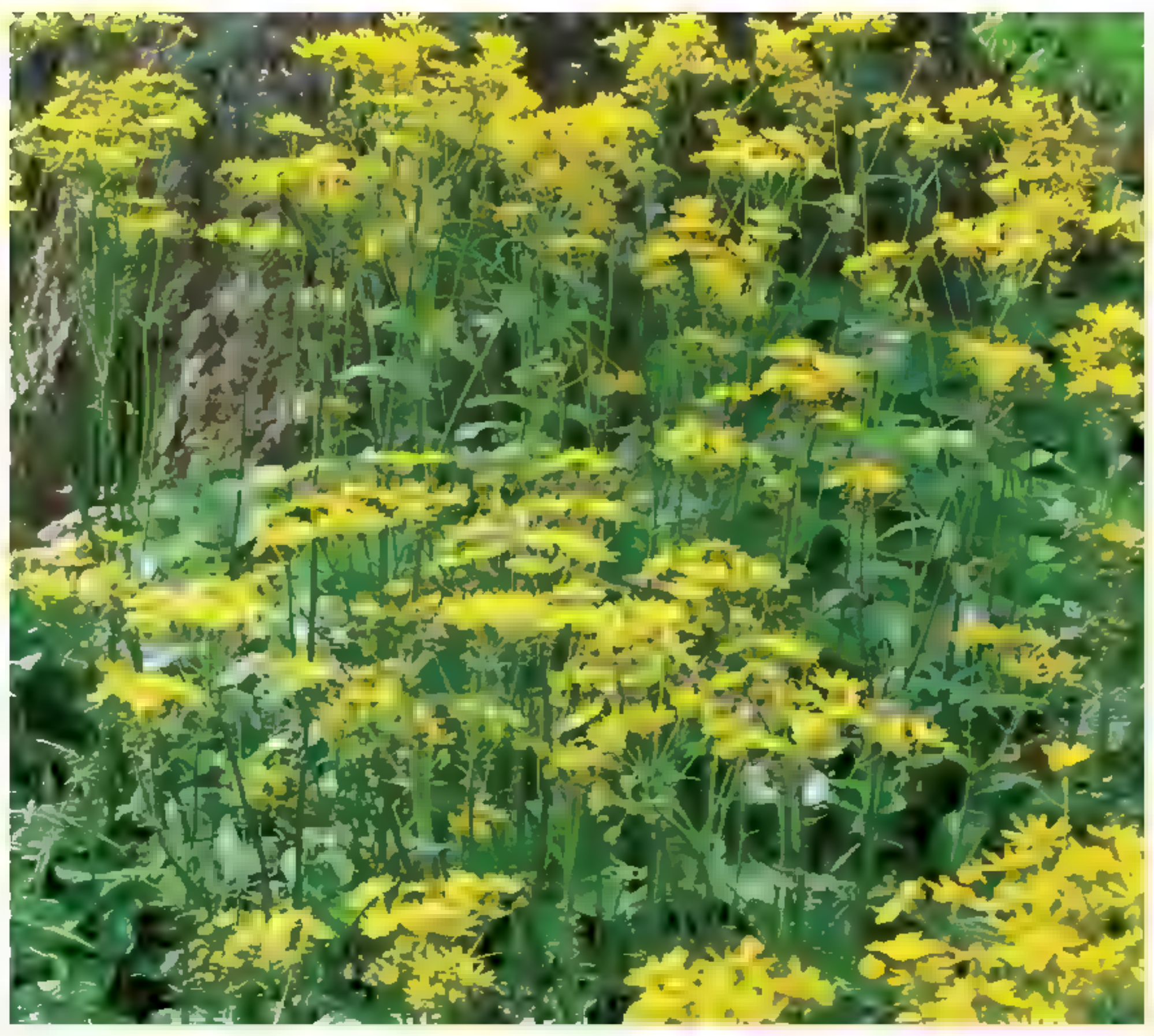
Staff hiked to a wetland fen and collected several species of sedges (*Carex* spp.), rushes (*Juncus* spp.), and bushy aster (*Aster dumosum*), some of which may prove useful in rain gardening. At Baker Prairie, a rare remnant prairie close to the Arkansas/Missouri border, collections included heart-leaved Alexander (*Zizia aptera*), western rough goldenrod (*Solidago radula*), and whorled mountain mint (*Pycnanthemum verticillatum* var. *pilosum*). Other mountain mint species attract many species of butterflies, bees, and solitary wasps and are noteworthy garden plants. The 2009 trip ended at Hercules Glade, high in the Missouri Ozarks, where the horticulture staff collected fringe tree (*Chionanthus virginicus*) and Missouri maiden-bush (*Andrachne phyllanthoides*). Missouri maiden-bush is a three-foot-tall shrub with tiny leaves that resembles spirea. Plants like this may some day end up in garden centers and backyards throughout Missouri if they can earn their keep in the Whitmire Wildflower Garden first.

photo by Scott Woodbury

Using plants of known local origin is one way to ensure that additions to your garden will thrive.

In 2009, 55 species new to the garden were collected, identified, processed for greenhouse production, and excess seed stored in a specially designed seed storage room that is part of the newly constructed facility at the Shaw Nature Reserve (see page 23). It is the new home for the Reserve's horticulture, education, and maintenance departments and will house several Missouri Department of Conservation employees. The buildings were made possible in part through generous contributions from John and Connie McPheeters and Blanton and Peg Whitmire.

Authors' note: Though some of the species mentioned are available in nurseries, few are of a known local origin. The best way to ensure that garden plants will thrive is to use plants of local origin (also called local ecotype). This is another important reason why seeds are collected from wild populations. It is also important to keep in mind that only small quantities of seed are collected from wild populations. Once sizeable populations are established in the Whitmire Wildflower Garden, plants are then produced in large quantities for public distribution.



Round-leaved groundsel (Senecio obovatus)

FEATURED NATIVE PLANT

Round-leaved groundsel (*Senecio obovatus*) is at the top of our list as a dependable choice for low-maintenance native ground cover. This hardy plant performed well in various locations of the Whitmire Wildflower Garden, preferring dry to average soil in shaded areas of the garden. It is prized for its evergreen foliage and abundance of yellow flowers in spring. The rounded foliage is a pleasant complement to ferns, sedges, and other fine-textured woodland plants.

photo by Leslie Wallace

Matthew Albrecht

Hunting for endangered native plants

During the past year, **Matthew Albrecht** has made several trips to collect seeds of endangered and endemic plants in the midwestern United States. Last April, he traveled to Arkansas, where he collected seeds of *Claytonia ozarkensis*, a newly described species that is known only from Arkansas, Missouri, and Oklahoma and is in the Center for Plant Conservation's National Collection of Endangered Species. Last June, Matthew and his assistant, Juan Carlos Penagos, gathered seeds of several glade endemics in southwestern Missouri, including the federally endangered *Geocarpon minimum*. In June 2009 as well, under a grant from the Center for Plant Conservation and the National Park Service, Matthew and his team collected seeds in Tennessee from two federally threatened and endangered species, *Astragalus bibullatus* and *Conradina verticillata*.

Saving Time and Money with Native Groundcovers

by Cindy Gilberg and Scott Woodbury

"To garden" implies activity and interaction on the part of a gardener. The real question for those wanting a low-maintenance garden is how much activity is the gardener willing to do? Gardeners have to balance their love of gardening with the amount of time they have to garden. Part of the low-maintenance question can be answered by keeping the size of a garden in proportion to the amount of time a gardener can spend maintaining it. The other part involves choosing plants that require less weeding, mulching, watering, and trimming.

Here are some time comparisons for you to consider when selecting a garden size. It takes about 10 to 15 hours annually to take care of a low-maintenance groundcover planting (based on 500 square feet). In comparison, it takes about 25 to 30 hours annually to maintain a standard mulched planting bed and about two to three hours for a mowed lawn. Again, this is based on 500 square feet. This does not include planning, installation, or maintenance time during the first year. It does include mulching, watering, weeding, and cleanup once the planting becomes established. If you want less maintenance, native groundcover plantings may work for you.

Top: The new native groundcover garden at the Whitmire Wildflower Garden. In the foreground are pussy toes and oak sedge.

Above: Prairie alumroot (Heuchera richardsonii) *is an ideal groundcover for small areas.*

Awesome, low-maintenance gardens are like good pizza. They both require the best ingredients.

Now that you have some idea of how much time may be involved, you need to consider the plants. Awesome, low-maintenance gardens are like good pizza. They both require the best ingredients. The best native groundcover plants are low-growing and long-lived, they eliminate weeds, and are showy year-round. Prairie alumroot (*Heuchera richardsonii*), for example, has a height of 10 inches with flowering stalks that grow up to two feet. They have been thriving in various areas, in both sun and part shade, in the Whitmire Wildflower Garden for nearly 20 years. When mass-planted on 10- to 12-inch centers, they grow into solid mats and have emerald leaves that remain green into winter. In addition, it is clump-forming and so is an ideal groundcover for small areas.

Some groundcovers form clumps, and others spread with rhizomes (underground shoots). Small planting areas are best planted with clump-forming species because they spread very slowly. When planting larger areas (750 square feet or greater), rhizomatous plants fill in more quickly, tolerate wider spacing, and involve fewer plants. This group includes palm sedge (*Carex muskingumensis*), southern blue flag iris (*Iris virginica*), round-leaved groundsel (*Senecio obovatus*), and aromatic aster (*Aster oblongifolius*), all of which perform well and are showy. Plants like these form a dense mat that excludes weeds and when mature require little or no mulch. For the best visual effect, plant each species in large masses of 25 or more.

Keep in mind that you will need to choose plants that are adapted to your particular site condition—wet, dry, sunny, shady, etc. For example, dwarf-crested iris (*Iris cristata*) belongs in the shade, while copper iris needs full sun. American feverfew (*Parthenium hispidum*) can tolerate summer drought while shining bluestar (*Amsonia illustris*) can tolerate both spring flooding and summer drought. A number of plants even tolerate a wide array of sunlight and soil conditions like palm sedge (*Carex muskingumensis*) and oak sedge (*Carex albicans*). Once planted in the right place, native plants thrive with modest care. Another factor that favors the use of native plants is their low incidence of insect and disease problems. This translates into less need for irrigation, fertilizer, and pesticides. When chosen correctly, native plants in the landscape can greatly enhance savings in time and money.

There is a new native groundcover garden at the Shaw Nature Reserve where you can see all of the following groundcovers on display. The garden is a part of the Home Gardening Display in the Whitmire Wildflower Garden.

photos by Scott Woodbury

Clump-forming plants for small groundcover areas

10- to 16-inch spacing

Shade to Part Shade:

oak sedge (*Carex albicans*), dry to wet soils
ivory sedge (*Carex eburnea*), medium to wet soils
bur sedge (*Carex grayii*), medium to wet soils
James sedge (*Carex jamesii*), dry to wet soils
littleflower alumroot (*Heuchera puberula*), medium to wet soils
hairy alumroot (*Heuchera villosa*), medium to dry soils
American alumroot (*Heuchera americana*), medium to dry soils
zig-zag goldenrod (*Solidago flexicaulis*), medium to dry soils

Full Sun:

fringed sedge (*Carex crinita*), medium to wet soils
yellow-fruited sedge (*Carex annectans*), medium to wet soils
yellow false indigo (*Baptisia sphaerocarpa*), medium to dry soils
prairie alum root (*Heuchera richardsonii*), medium to dry soils
copper iris (*Iris fulva*), medium to wet soils
dense blazing star (*Liatris spicata*), medium to dry soils
slender mountain mint (*Pycnanthemum tenuifolium*), medium to dry soils
orange coneflower (*Rudbeckia fulgida*), medium to wet soils
prairie dropseed (*Sporobolus heterolepsis*), medium to dry soils

Rhizomatous plants massed for large groundcover areas

16- to 24-inch spacing

Shade to Part Shade:

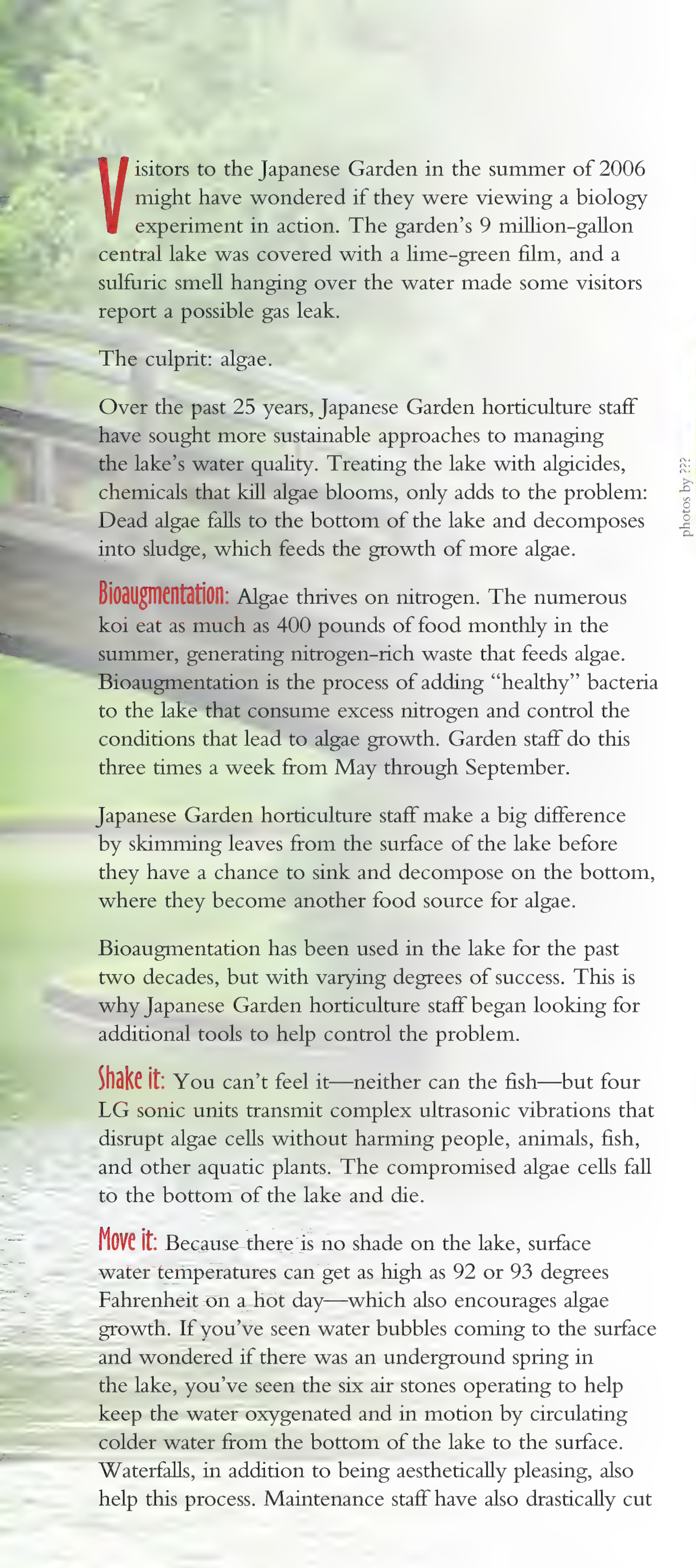
rose turtlehead (*Chelone obliqua*), medium to wet soils
beak grass (*Diarrhena obovatus*), dry to medium soils
dwarf crested iris (*Iris cristata*), medium to dry soils
ostrich fern (*Matteuchia struthiopteris*)*, medium to wet soils
sensitive fern (*Onoclea sensibilus*), medium to wet soils
round-leaved groundsel (*Senecio obovatus*)*, medium to dry soils
golden groundsel (*Senecio aureus*)*, medium to wet soils, evergreen

Full Sun:

yarrow (*Achillea millefolia*), medium to dry soils
Buxbaum's sedge (*Carex buxbaumii*), medium to wet soils
palm sedge (*Carex muskingumensis*), dry to wet soils
tollway sedge (*Carex praegracilis*), medium to dry soils
meadow anemone (*Anemone canadensis*)*, medium to wet soils
aromatic aster (*Aster oblongifolius*), medium to dry soils
rose turtlehead (*Chelone obliqua*), medium to wet soils
mistflower (*Eupatorium coelestinum*), medium to wet soils
wild strawberry (*Fragaria virginica*)*, medium to dry soils
western sunflower (*Helianthus occidentalis*)*, medium to dry soils
southern blue-flag (*Iris virginica*), medium to wet soils
American feverfew (*Parthenium hispidum*), medium to dry soils
cordgrass (*Spartina pectinata*)*, medium to wet soils

* *Plants that spread aggressively and quickly develop into large colonies.*

Earth-Friendly Lake Management in the Japanese Garden



Visitors to the Japanese Garden in the summer of 2006 might have wondered if they were viewing a biology experiment in action. The garden's 9 million-gallon central lake was covered with a lime-green film, and a sulfuric smell hanging over the water made some visitors report a possible gas leak.

The culprit: algae.

Over the past 25 years, Japanese Garden horticulture staff have sought more sustainable approaches to managing the lake's water quality. Treating the lake with algicides, chemicals that kill algae blooms, only adds to the problem: Dead algae falls to the bottom of the lake and decomposes into sludge, which feeds the growth of more algae.

Bioaugmentation: Algae thrives on nitrogen. The numerous koi eat as much as 400 pounds of food monthly in the summer, generating nitrogen-rich waste that feeds algae. Bioaugmentation is the process of adding "healthy" bacteria to the lake that consume excess nitrogen and control the conditions that lead to algae growth. Garden staff do this three times a week from May through September.

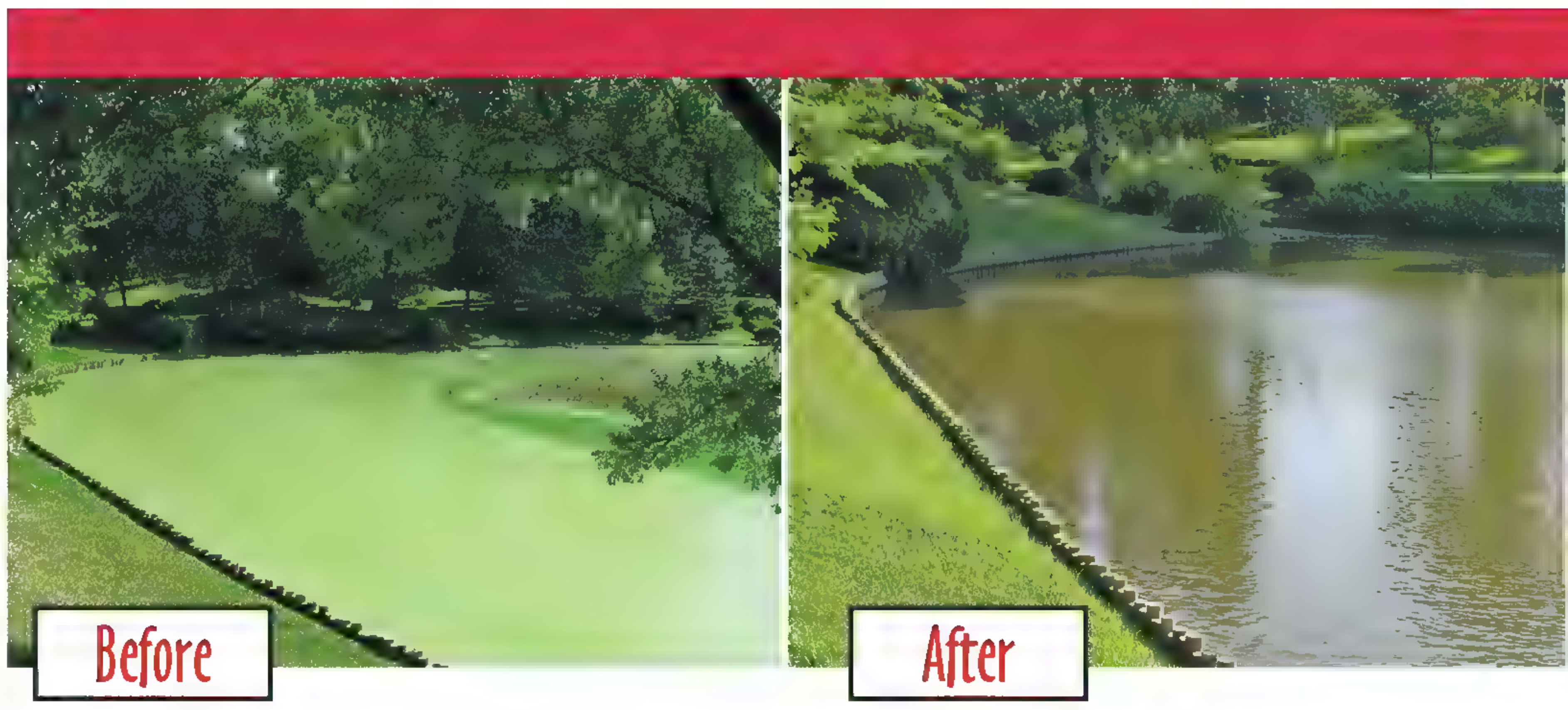
Japanese Garden horticulture staff make a big difference by skimming leaves from the surface of the lake before they have a chance to sink and decompose on the bottom, where they become another food source for algae.

Bioaugmentation has been used in the lake for the past two decades, but with varying degrees of success. This is why Japanese Garden horticulture staff began looking for additional tools to help control the problem.

Shake it: You can't feel it—neither can the fish—but four LG sonic units transmit complex ultrasonic vibrations that disrupt algae cells without harming people, animals, fish, and other aquatic plants. The compromised algae cells fall to the bottom of the lake and die.

Move it: Because there is no shade on the lake, surface water temperatures can get as high as 92 or 93 degrees Fahrenheit on a hot day—which also encourages algae growth. If you've seen water bubbles coming to the surface and wondered if there was an underground spring in the lake, you've seen the six air stones operating to help keep the water oxygenated and in motion by circulating colder water from the bottom of the lake to the surface. Waterfalls, in addition to being aesthetically pleasing, also help this process. Maintenance staff have also drastically cut the amount of time it takes to service and repair the motors on these units—from two to three weeks to two to three days, so that coverage is virtually continuous.

No strategy is foolproof, and staff must constantly adjust their strategy to keep algae in check.



photos by ???

Barley straw is also added near the waterfalls. As it decomposes, it produces compounds that inhibit algae growth. This is only done on a small scale, typically once a year, but even small efforts like this help overall.

The hardy water lilies and other plants to the west of the path are another algae suppression tool. Water plants take nutrients from the lake that might otherwise promote algae growth. However, the fish that delight visitors by the koi feeding bridge also love to eat plants, so Garden staff had to find a way to keep water plants isolated from the fish. A gate near the granite bridge adjusts to changing lake levels and keeps the koi away from the plants.

Remove it: In spite of the best efforts, algae blooms can still occur. One of the best ways to address them, instead of adding chemicals, is to physically remove them. This is done using a boom created by Japanese Garden horticulture staff using lengths of water pipe insulation strung together and floated on the surface of the lake. When positioned between the granite bridge and Teahouse Island, the boom lets the wind blow an algae bloom under the granite bridge to the lake's drain.

No strategy is foolproof, though; a heavy rainfall can alter conditions drastically. By using the current multifaceted approach and monitoring lake conditions closely, staff constantly make adjustments in response to environmental influences and keep a close eye on Mother Nature, which is the ultimate teacher.

Garden staff, including horticulturists and maintenance, use numerous sustainable techniques to keep the lake free of algae.

photo by Leslie Wallace

photo by Kathleen Mack

Pervious concrete allows rainwater to filter through instead of running off and overwhelming the sewer system.

A greener blacktop at the Garden

Most visits to the Garden typically begin and end in the parking lot. The next time you come, take a closer look at the sustainable storm-water management strategies that are now in place, including unique paving surfaces.

The east parking lot in front of the Ridgway Visitor Center is reopen after much-needed repairs and improvements made possible by federal funds through the Missouri Department of Transportation. By incorporating areas of porous pavement (concrete and asphalt), rain water filters through the pervious surfaces and recharges the groundwater below instead of overwhelming the municipal storm sewer system.

For areas paved with traditional impervious asphalt, rain water drains into a bioswale area landscaped with native plants. Similar to a backyard rain garden, the storm water is captured by the plantings in the bioswale, allowing it to be absorbed slowly into the ground while filtering out pollutants from the parking lot.

All asphalt and concrete from the old parking lot is being recycled for future roadway aggregate.

Monsanto Center Earns LEED Silver Status

photo by Jack Jennings

Monsanto Center

The Missouri Botanical Garden's Monsanto Center has achieved silver certification under the LEED rating system for Existing Buildings: Operations & Maintenance (LEED EB/OM). It's the first building in Missouri to earn this honor. Fewer than 250 buildings nationwide have achieved LEED EB/OM certification.

Developed by the U.S. Green Building Council (USGBC), LEED EB/OM is a method for owners and operators of existing buildings to implement sustainable operations and maintenance practices to reduce the environmental impact of a building over its functional life cycle. Certification required the implementation of green strategies as they relate to all building operations such as landscape management, snow removal, energy management, housekeeping, waste reduction, purchasing, and indoor air quality.

"LEED EB/OM certification is not a final destination," said Deborah Frank, vice president of sustainability. "Rather, it's an ongoing journey requiring the due diligence of many to continuously monitor and maintain best practices in sustainable operations."

Located at the corner of Shaw and Vandeventer, the Monsanto Center was designed and constructed in 1998. The four-story, 77,500-square-foot building houses the Garden's herbarium collection, rare books library, and over 100 research staff and students.

EarthWays Center to provide consulting assistance for Green Business Challenge

The St. Louis Regional Chamber and Growth Association (RCGA) has enlisted the expertise of the EarthWays Center to provide consulting services for its first ever St. Louis Green Business Challenge. Recognizing that sustainability provides an opportunity for economic growth, the RCGA wants to inspire regional businesses and organizations to become more sustainable at their individual office sites.

The St. Louis Green Business Challenge will measure savings and sustainability achievements in areas such as energy, waste, indoor environment, water, transportation, and outreach. Green Business Challenge teams determine their individual baseline score and then improve on their baseline by implementing sustainability strategies throughout 2010. Companies will be recognized for their improvements and accomplishments at a special event in November.

EarthWays Center staff is contracted to conduct monthly information seminars and provide technical assistance related to sustainable business operations for all participating RCGA member businesses.

photos courtesy of EarthWays Center staff

Sustainable Schools

Learning Green… In Greener Buildings

by Kim Petzing, EarthWays Center Supervisor of Education Programs

Teachers visit hydro and nuclear power production sites to study energy issues firsthand.

A green school is a healthy environment that can physically boost student learning while saving energy and money. The "triple bottom line" of sustainability especially applies to managing schools. Green schools benefit:

☑ **people**—studies have shown how attendance and test scores increase in schools that use elements like daylight and outdoor learning;

☑ **planet**—using fewer resources generates less waste; green learning helps future decision-makers understand how natural resources are used in buildings;

☑ **profit**—green buildings stretch school budgets with reduced utility bills, green cleaning that's healthier for adults and kids, and tax revenue advantages tied to school reputations.

In class, sustainability topics show how the school and personal actions impact our use of Earth's resources. Students learn to solve problems with the understanding that there often isn't one right answer but many elements to consider.

The Garden's Education and Sustainability divisions help build green content into learning and integrate operational green into new and existing school buildings.

For teachers

The ***Sustainable Schoolyard Program*** engages students in planning, planting, and managing a native plant habitat. The ***Summer Energy Conservation Institute*** includes field exploration of a wind farm, nuclear power plant, oil refinery, and more.

For students

Set a green tone with a ***class tour of the EarthWays Center. LEAP*** (Leadership in Environmental Action Projects) focuses on recycling and composting. Student auditors ***Investigate Green Schools*** and learn to recommend sustainable improvements in their own school.

For the building professions

The ***Green Schools subcommittee of the U.S. Green Building Council–St. Louis Regional Chapter*** offers speakers, advocacy, and examples to inspire school Green Teams and guide sustainability planning.

For colleges and universities

the EarthWays Center's new ***listing of all sustainability courses*** in our area has been applied by the St. Louis Community College District to help environmental studies scholars match classes to their interests and degree needs. The ***Campus Sustainability Network*** is weaving an environmental ethic into higher education.

How can the Garden help your school green the coming learning year?

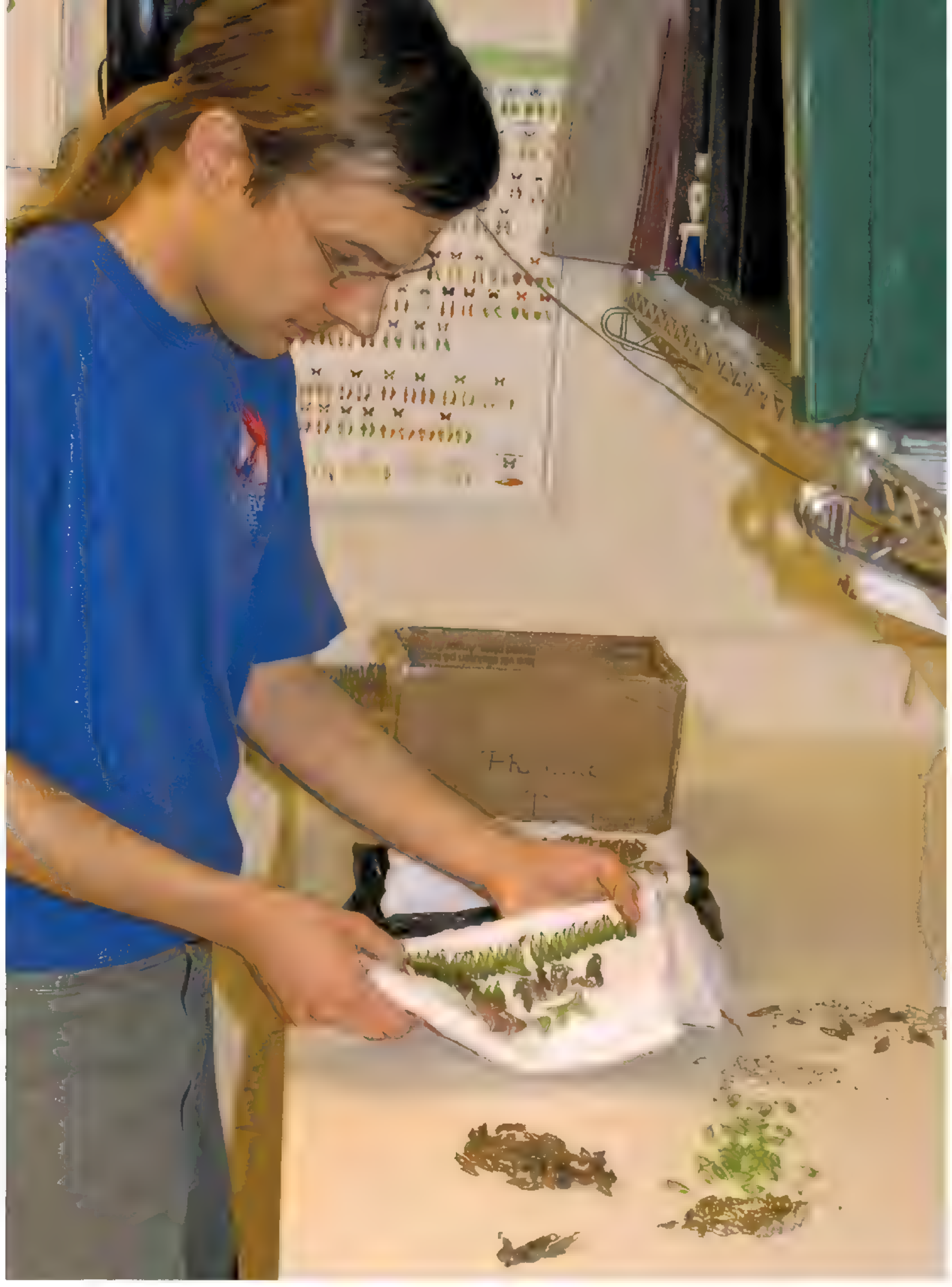
- Contact the EarthWays Green Schools Team at (314) 577-0281 or kim.petzing@mobot.org.
- Become a fan of the Sustainability Education Network on Facebook or contact k12sustainabilityed@gmail.com.
- Learn more from the U.S. Green Building Council at www.greenschoolbuildings.org.

Camp EarthWays: Young Green Builders

Mondays through Fridays, July 12–16 and July 19–23, 9 a.m. to 4 p.m.
Students ages 10–13 will explore sustainable building design and create their own fantasy green home. They will meet green building professionals and hop on public transportation to visit green neighborhoods and homes. In the optional second week, campers will put their skills to the test with a hands-on project.

$170 members; $185 nonmembers
Discounted rate if booking both weeks: $290 members; $320 nonmembers.
For more details and to register, visit www.mobot.org/classes

USDA Regulations and Tropical Butterflies—
Why all the restrictions?



Butterfly House staff member Chris Hartley unpacks butterfly chrysalids from Surinam.

photo by Jessica Deering

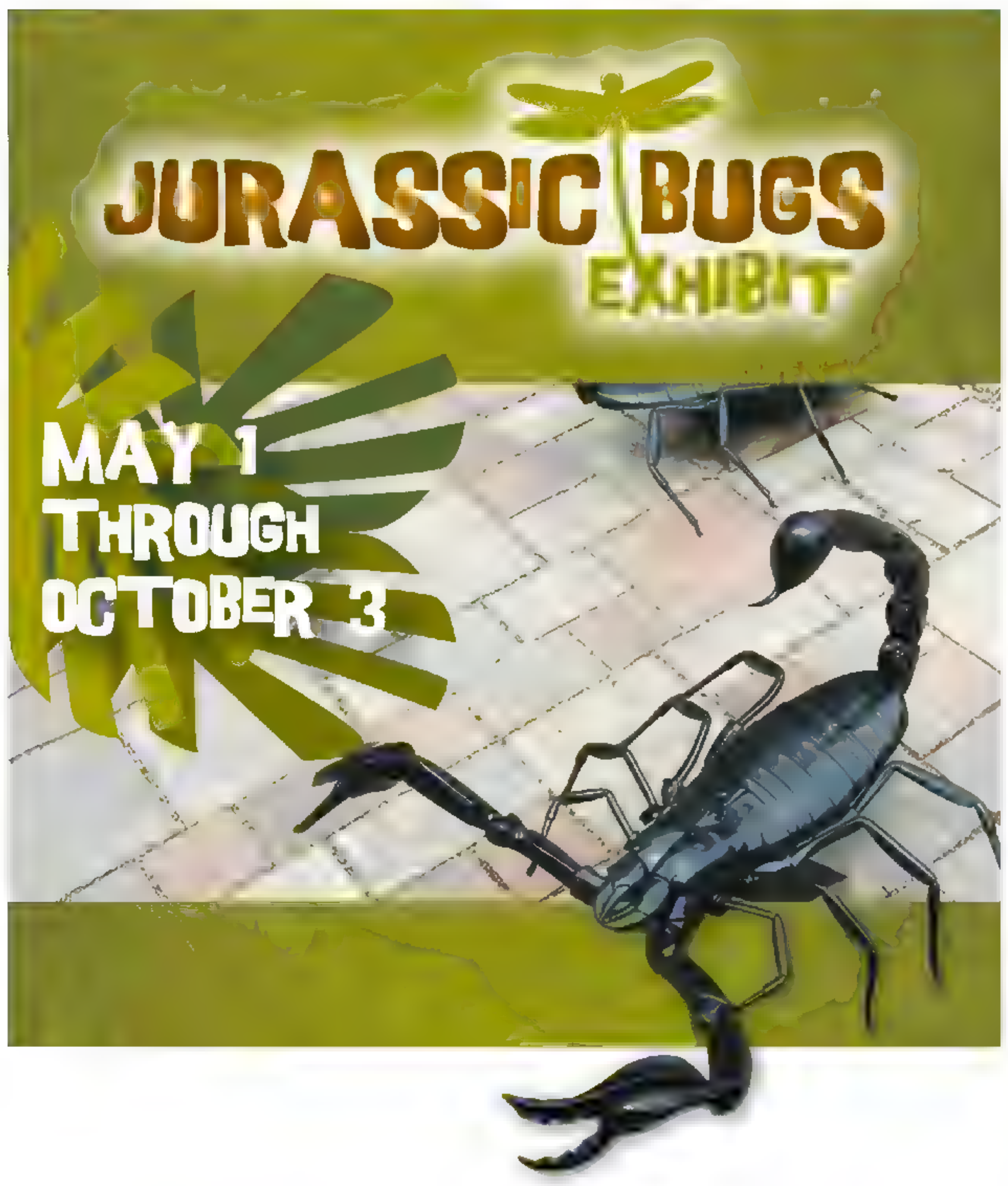
photo courtesy Shaw Nature Reserve

Did you know the Butterfly House doesn't actually produce any of the tropical butterflies flying about the conservatory? As a major conservation effort, partnerships have been developed with tropical farming operations that have turned to butterfly farming as a much less invasive form of agriculture. These partnerships are not only about conservation and habitat restoration, they are also a requirement for tropical butterfly facilities operating in the U.S.

All tropical butterfly breeding and importation is regulated by the USDA–APHIS–PPQ, (United States Department of Agriculture–Animal and Plant Health Inspection Service–Plant Protection and Quarantine). As tropical butterflies are considered plant pests in the caterpillar stage, the USDA must ensure none are allowed to escape into the environment. Specifications are also in place for the construction of butterfly exhibits. As you visit the Butterfly House, you may see some of these requirements and not even realize the extensive containment efforts that occur throughout. The double doors, air-conditioned vestibules, and USDA signage are all part of these requirements, but most efforts actually occur behind the scenes. For example, the packages of butterflies received from the tropical farms must be opened only in a quarantine laboratory, and all the packaging material must be frozen or dipped in 70 percent alcohol before disposal. These regulations are also why guests are not permitted to remove any living or dead butterflies or plant material from the conservatory.

All of these regulations may seem excessive, but not when you consider how some non-native species negatively impact our environment. The gypsy moth and emerald ash borer are both innocuous in appearance, but they have become established outside the range of natural predators and parasitoids and are causing significant damage to native species.

The Butterfly House continues to work closely with the USDA to ensure that the charismatic butterflies are available for all to see and to tell their story of critical plant and animal relationships that impact us all.



Wing Ding 2010

The Sophia M. Sachs Butterfly House will hold its signature gala, Wing Ding 2010, on Friday, June 25, at the Butterfly House in Faust Park.

This year's gala theme is *Pura Vida*, or "full of life." This festive affair with a Costa Rican feel will come alive with colorful decorations, food and beverages with a tropical flair, and lively music.

Celebrate with us the grace and beauty of the 1,500 butterflies that flutter about the 8,000-square-foot conservatory, and discover the important relationship between the Butterfly House and a butterfly farm in Costa Rica.

Proceeds from *Pura Vida* will support education programs, special exhibits, and conservation initiatives at the Butterfly House. Ticket prices begin at $250 (Young Friends of the Garden are eligible for reduced-price tickets). For reservations, call (314) 577-0291.

New Support Complex Walks the Green Talk

The new Environmental Support Complex at the Shaw Nature Reserve is green in more ways than one. Construction was completed in April on the facility, which consists of three buildings totaling more than 18,000 square feet to house the Reserve's Education, Horticulture, and Maintenance operations. Made possible in part through donations to the Missouri Botanical Garden's *Stewards of the Earth* capital campaign, the new buildings replace facilities that were built in 1927 and 1930 to house the Garden's orchid collection and to support grounds maintenance.

The Reserve is pursuing LEED Gold certification for the complex, which includes a building that provides office space, staff and volunteer work areas, a seed storage room, conference and lunch rooms, and expanded storage space. A new general operations building provides space for vehicle and equipment maintenance, woodworking activities, and storage space for firefighting equipment. Rounding out the complex is the new head house, which provides work areas and storage space for all horticulture-related activities.

During demolition of the old buildings, over 90 percent of the materials were either salvaged for reuse or recycled, reducing the amount of materials that had to be taken to landfills. This includes over 16 tons of metal and piping that were recycled, as well as 700 tons of aggregate created by crushing concrete floors and brickwork from the old buildings.

Several features of the complex address sustainability issues, including an innovative cooling system that uses about half the energy of a conventional cooling system, passive solar features, and energy-efficient lighting. In addition, rainfall from the roofs is collected in a large cistern that was built in 1927 when all of the Garden's orchids were moved to the Reserve. This water is used as part of the cooling system and for watering plants. A 50,000-square-foot storm-water retention wetland planted with native species will capture run-off from the support complex parking lot.

An added benefit of the new facilities is that they will bring education and outreach staff on site from the Missouri Department of Conservation, increasing collaboration opportunities between the department and the Reserve's education staff.

Over 90 percent of the materials from the facilities demolished to make way for the Environmental Support Complex were either recycled or salvaged for reuse.

All aboard the Wilderness Wagon

Saturdays and Sundays through June

A narrated wagon ride travels the three-mile Trail House Loop Road, stopping at the Trail House and wetland bus stop. The tour departs the Visitor Center on the hour at 1, 2, and 3 p.m. $1 per person, in addition to Reserve admission.

Seen at the Garden

Dr. Peter Wyse Jackson Receptions | *March 1 & 3, 2010*

Dr. Peter Wyse Jackson, director of the National Botanic Gardens of Ireland, has been selected to succeed Dr. Peter H. Raven as the next president of the Missouri Botanical Garden on September 1. Dr. Wyse Jackson was honored at receptions on March 1 at the Garden and on March 3 at the Saint Louis Club.

photos by Josh Monken

Drs. Patricia and Peter Raven, Dr. Peter Wyse Jackson, Thomas Wyse Jackson, and Diane Wyse Jackson

Dr. and Mrs. David Lange

Dr. Mark Wrighton and Mrs. Risa Zwerling Wrighton

Dr. Patricia Raven and Mr. and Mrs. Ed Higgins

Mr. and Mrs. William Rusnack, Mr. and Mrs. Arnold Donald, and Mr. and Mrs. James Berges

Arnold Donald and Peter Wyse Jackson

Mary Cox and Lelia Farr

Mr. Doug King, Mr. and Mrs. Bob Herleth, and Mr. and Mrs. Bob Archibald

Mr. and Mrs. William Miller and Mr. Robert Hansen

Dr. and Mrs. Ernie Jaworski

Mr. and Mrs. Jerry Kluge

Henry Shaw Dinner ¦ *April 26, 2010*

Dr. Michael A. Dirr, professor emeritus of horticulture at the University of Georgia, was awarded the Henry Shaw Medal from the Missouri Botanical Garden during the annual Henry Shaw Dinner on April 26. The medal honors those who have made a significant contribution to the Garden, botanical research, horticulture, conservation, or the museum community.

photos by Josh Monken

Dr. Peter Raven, Bonnie and Dr. Michael Dirr, and Steve Maritz

Mr. and Mrs. Peter Sortino, Mr. and Mrs. Tim Gamma, Mr. and Mrs. Roger Brueckman, and Ms. Ellen Barredo

Mr. and Mrs. Bob Schulte

Mr. and Mrs. Richard Huemoeller, Ms. Karen Dodge, and Ms. Dot Soldavini

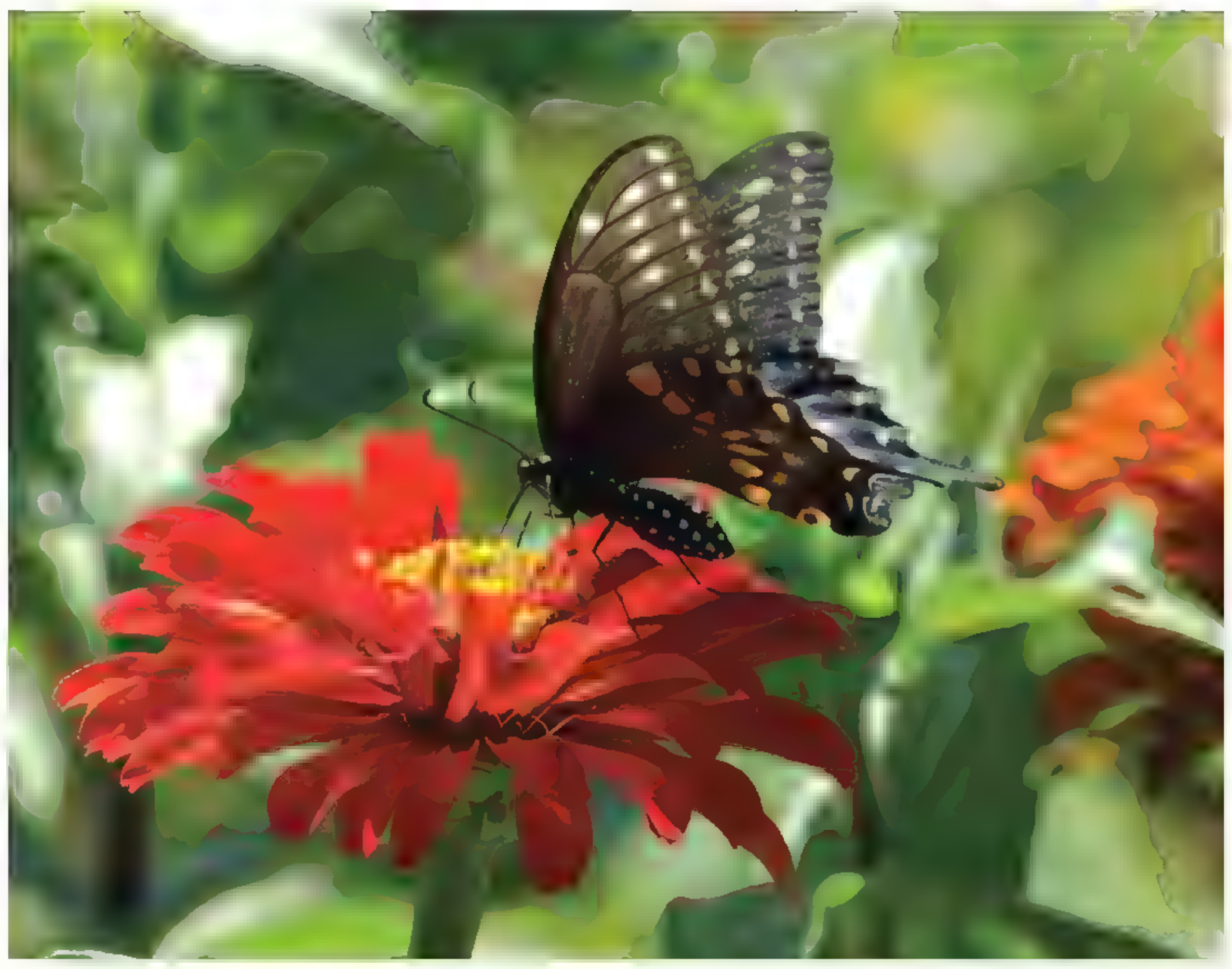


photo by Brian Mueller

Tributes

January through March 2010

A tribute gift to the Garden is a wonderful way to honor family and friends. Tributes of $25 or more are listed in the *Bulletin*. If you have questions regarding giving opportunities at the Garden, please call (314) 577-0805. You can also make a tribute gift online at our website, www.mobot.org.

In Honor of

Mrs. Carol Armstrong
Mr. and Mrs. Richard C. Dunn

Mr. Donald H. Bergmann
Mr. Charles D. Mueller

Mr. and Mrs. Stephen F. Brauer
Mr. and Mrs. Donald M. Lambert

Will and Hellen Carpenter
Ms. Alice Nichols

Dr. Marshall Crosby and Shelley Pryor
Mr. and Mrs. Emmanuel C. Paxhia

Guests of the Evans and Leahy wedding
Ms. Caitlin Evans

Mrs. Gail K. Fischmann
Mr. and Mrs. Walter G. Stern

Mrs. Marion C. Freiermuth
her family

Mrs. Gail Grazziano
Lori Trost and Ed Siemers

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Ms. Klaudia Heinrich

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Mr. David Sherman, Jr.
Mr. Todd Siwak and Ms. Gianna Jacobson
Mr. and Mrs. Rick Weinstein

Ann and Tony Zamis
Ms. Joanne Shocklee and Family

Mr. Henry Zeilmann
Mr. and Mrs. Alan D. Pratzel

photo by Paul Straatmann

Create a legacy

Leaving a bequest to the Garden creates a legacy that will benefit others for generations to come. If you have already included the Garden in your estate plans, we hope that you will share this information with us. We would like to express our gratitude and welcome you into the Heritage Society. Of course, your wishes for anonymity are respected. Please call (314) 577-9495 for further information, or visit our website at www.mobot.org. Click on Donate, then Planned Giving.

Members' Entry Court

Bricks dedicated at the Garden, January through March 2010.

Engraved clay bricks and signature bronze bricks are a wonderful way to commemorate any special occasion, as well as final memorials. For additional information regarding the Garden's brick program, please contact the Institutional Advancement Office at (314) 577-0291 or visit www.mobot.org.

Signature Bronze Brick

Wandy L. Beatty
L. David Sibley
Mr. L. David Sibley and Ms. Wandy L. Beatty

Engraved Clay Bricks

Caleb Colton
Eli Colton
John Colton
Lily Ruth Colton
Mary Hope Colton
Mr. and Mrs. Bruce Eckhardt

Laura Jeanne Connelly
Mrs. Sheila L. Aehle

Carter Eckhardt
Klaire Eckhardt
Wesley Eckhardt
Mr. and Mrs. Bruce Eckhardt

Betty Faust
Carl Faust
Mr. Carlon E. Faust III

Patricia J. Johnson
Mr. David W. Johnson

Mathilda and George Meyer
Mr. and Mr. James B. Tonneas

Ken and Mary Vance
Deni and Barb Graser
Jami and Michele Graser
Joan L. Graser
Kirk and Jan Haffer

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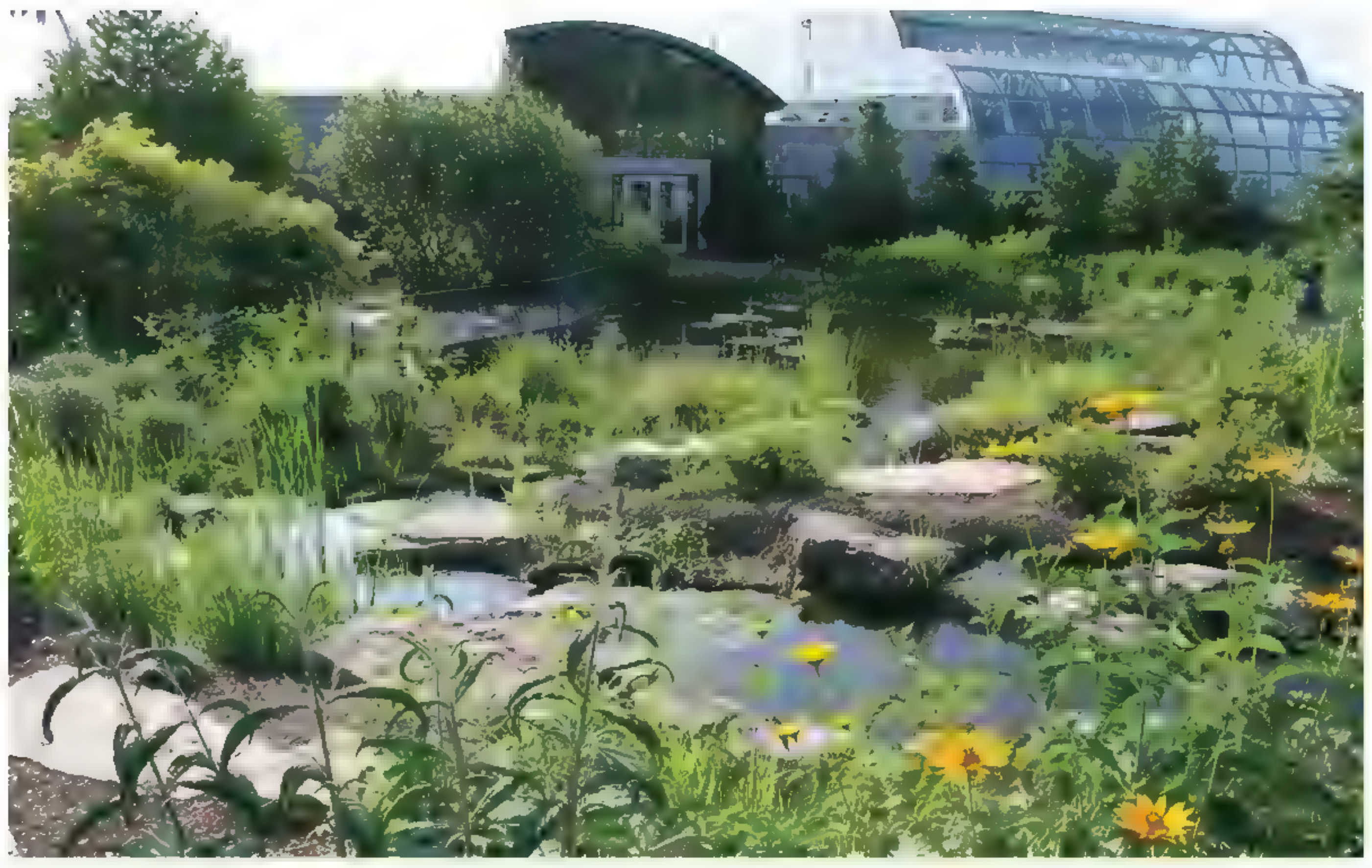


photo by Kevin Wolf

Sophia M. Sachs Butterfly House Tributes & Pavers

To learn more about these opportunities, call (314) 577-0291 or visit www.butterflyhouse.org.

Tributes and Pavers dedicated at the Sophia M. Sachs Butterfly House, January through March 2010.

Tributes

In Honor of

Mrs. Peggy Moehlenbrock
Ms. Ann C. Budde

Mayor John Nations
Women Transporation Seminar

In Memory of

Mr. and Mrs. Walter Cammarata
Mr. and Mrs. Wally Cammarata

Mr. Arnold E. Haumesser
The Cole Family
Ms. Jackie Juras

Mr. Norman S. Karty
Ms. Jackie Juras

Mr. and Mrs. Melvin J. Leiendecker
Mr. and Mrs. Wally Cammarata

Mrs. Ann P. Lieberman
Dr. Bernard W. Colton
Farm Trails Garden Club
Jackie and Ron Fleck
Girl Scouts of Eastern Missouri District 12 Neighborhood 3
Mr. and Mrs. Berl Katz
Mr. Dan Katz
Mr. and Mrs. Walter C. May
Mrs. Janet O'Neil
Mrs. Shirley O'Reilly
Ms. Emily V. Pendleton
Mr. and Mrs. Gregory B. Pendleton
Ms. Robyn L. Roehl
Mrs. Dolores Van Well
Mrs. Jolly Ann Whitener

Ms. Esther Pahl
Mrs. Rachel S. Anderson
Ms. Claudia Backus
Jan Boyd
Ms. Christine Y. Clark
Ms. Patricia S. Donohue
Mr. and Mrs. David L. Hawkins
Mr. and Mrs. Ned R. Hendrix
Bob and Linda Huheey
Mr. and Mrs. Sid Hutchins
Ms. Jackie Juras
Ms. Jerrie J. Kertz
Mr. and Mrs. James H. Korn
Hartley Leroy and Lynne Leroy-Helm Families
Vicky and Larry Livingston
Mr. and Mrs. Thomas W. Mills, Jr.
Betty J. Rigg, Pam Crabtree and Sherry Simmons
Mrs. Kelli P. Rigg
Mr. and Mrs. Wayne L. Walter

Pavers

Margaret Alway
Mr. Daniel Rohr

Layne Grace Brummit
Ira and Debbie Brummit
Randy and Phyllis Brummit
Mike and Tracy Carney and Family
Greg and Amy Kendall and Family
Larry and Judy Kendall
Morgan and Abby Mayer

Tabitha and Phil Goebel
Mr. and Mrs. Jeffrey S. Ziesemann

Amy M. Hughes
Mr. Joseph V. Bunetic and Family

Lorraine Kaiman
Mr. and Mrs. Todd Zimmerman

Esther Pahl
Sophia M. Sachs Butterfly House Staff and Volunteers

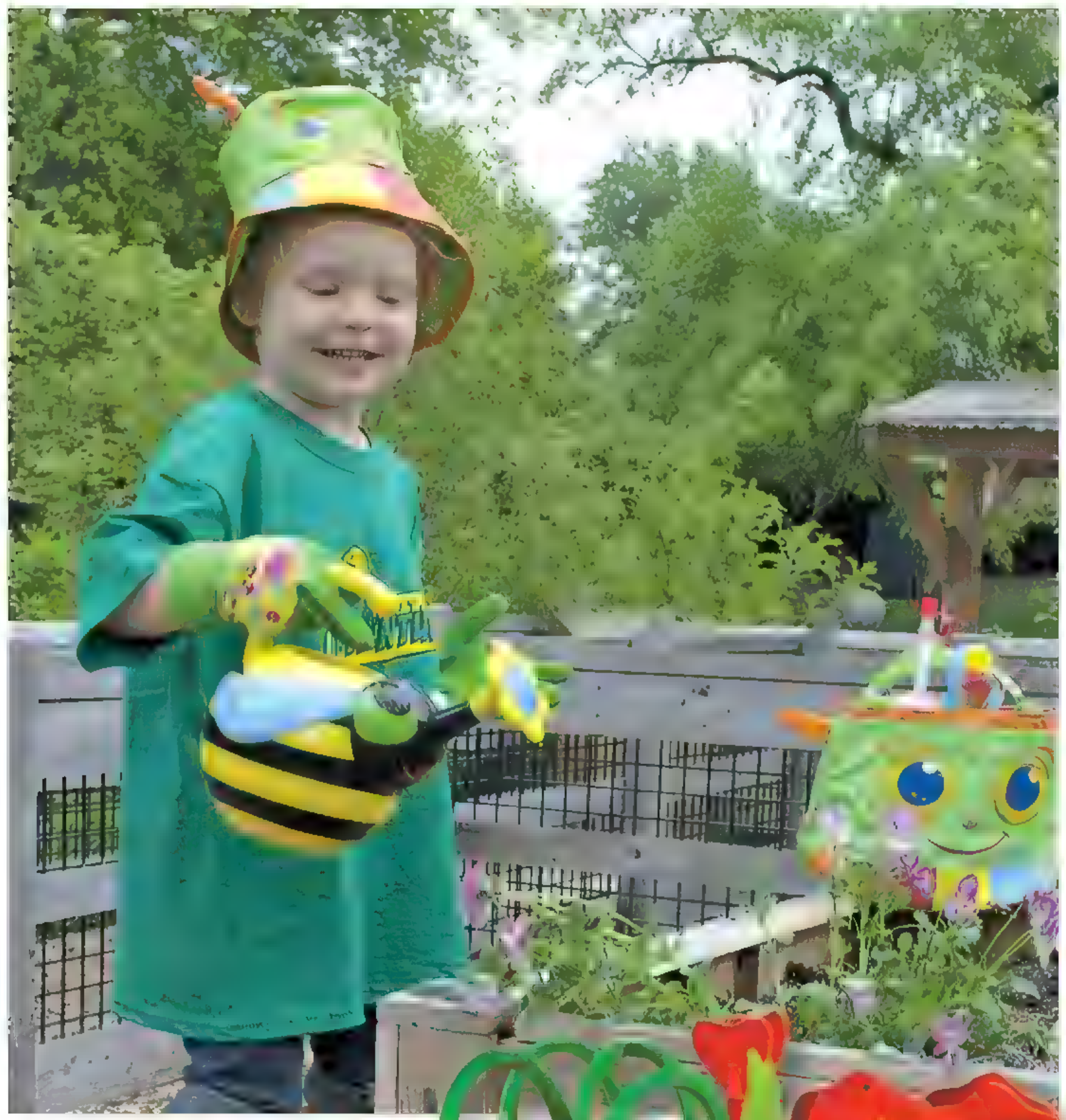
Esther Pahl
Mr. and Mrs. Randall D. Rigg and Family

Claire Marjorie Wilson
Mr. and Mrs. Douglas Adams

photos by Caroline Philippone

Growing Gardeners

This great new line of gardening tools, games, and toys will bring a spirit of play to everyday activities and encourage kids and families to explore their world together. From rakes and shovels to hopscotch, croquet, and galoshes, check out the wide selection at the Garden Gate Shop, where members always enjoy a discount.



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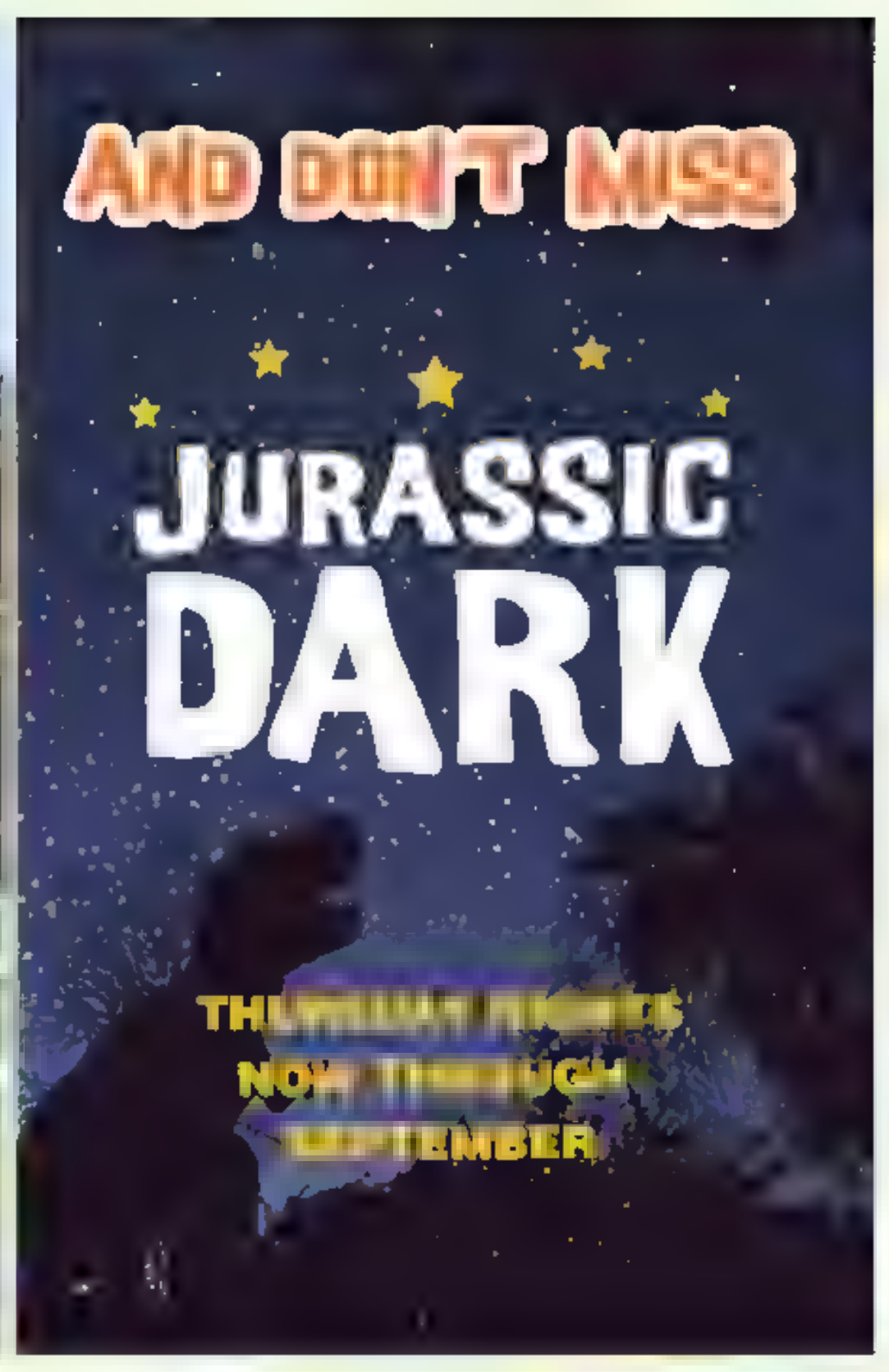


June

Average temperature: 75.6°F
Average precipitation: 3.76 in.

Through June 30
"Power of Plants" student art display. RVC.

Wed., June 2
Whitaker Music Festival. Denise Thimes. See page 8. 7:30 p.m. CA

Thurs., June 3
Field Trip: Backyard Beekeeping. $24. 6:30 to 8 p.m. EWC. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

Sat., June 5
St. Louis Carnivorous Plant Society show and sale. RVC

June 6–12
Illinois Appreciation Week. Illinois residents receive half-price Garden admission (a $4 value); a 10 percent discount in the Garden Gate Shop; and a 20 percent discount off new or gift memberships purchased this week.

Wed., June 9
Whitaker Music Festival. Trio Trés Bien. See page 8. 7:30 p.m. CA

Pitzman Nature Study: Teddy Bear Picnic. $18. Ages 4 to 6 with an adult. 9:30 to 11:30 a.m. SNR. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

Sun., June 9 & 16
Butterfly Displays. $15. Ages 8 and over. 9:30 to 10:30 a.m. BH. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

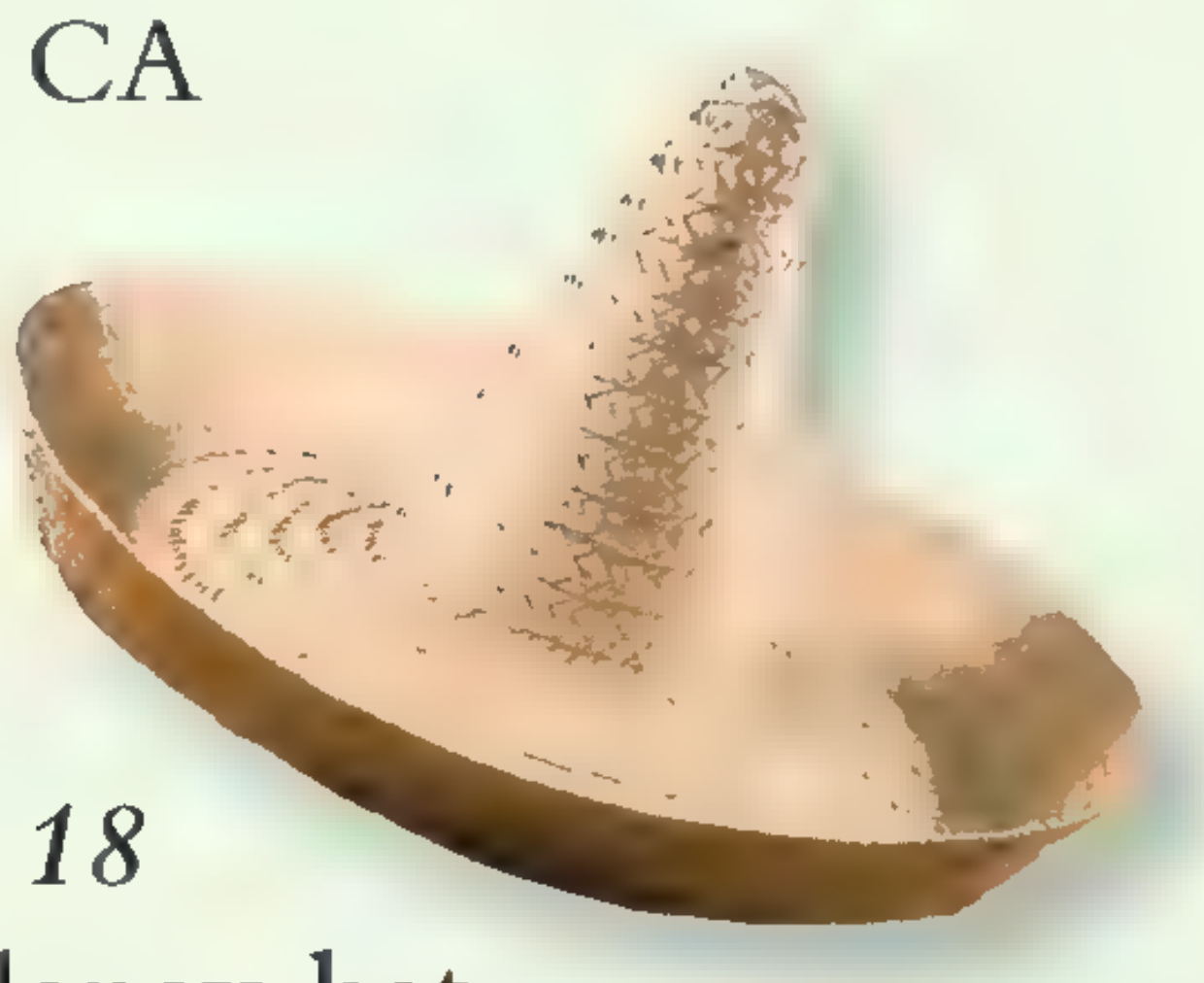
✿ **Members' Event: Musical Evening.** 6 p.m. Spoehrer Plaza.

Fri. & Sun., June 11 & 13
Bugaloo: $18. Ages 2 to 4 with an adult. Friday from 9:30 to 11 a.m. or Sunday from 12:30 to 2 p.m. BH. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

Sat.–Sun., June 12–13
Dino fossil trunk show. GGS

Tues., June 15
Gourd Birdhouse. $45. 7 to 9 p.m. RVC. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

Wed., June 16
Whitaker Music Festival. Peter Martin. See page 8. 7:30 p.m. CA



Fri., June 18
Jason Delaney hat signing. Even if you don't know him, chances are you've seen Garden horticulturist Jason Delaney's signature sombrero. Now's your chance to get the same hat to shade you from the sun while you work in your own Garden—and Jason'll sign it for you, too! 11 a.m. GGS.

✿ **Midsummer Night's Dance.** $60 Garden members; $70 nonmembers. Reservations required: (314) 577-9570 or www.mobot.org/membership. 6 to 10 p.m. SP ☎

Sat., June 19
Sacred Seeds Medicinal Walking Tour. 10 to 11:30 a.m. RVC. $30. Registration required: www.mobot.org/classes or (314) 577-5140 ☎

St. Louis Hosta Society show and sale. RVC

Sat.–Sun., June 19–20
Metropolitan St. Louis African Violet Council show and sale. RVC.

Public Tour Days at EarthWays Center. Guided tours at 11 a.m., noon, 1, and 2 p.m.; no reservations needed; $3. (314) 577-0220, www.earthwayscenter.org. Make the EarthWays Center one of your stops on the Green Homes Tour, Saturday, June 19. For more information, visit www.greenhomesSTL.org.

Dino fossil trunk show. GGS

Sun., June 20
Father's Day Barbecue at the Butterfly House. 11 a.m. to 2 p.m. Reservations required beginning June 7: (636) 733-2339. $☎

Whitaker Music Festival. Javier Mendoza. See page 8. 7:30 p.m. CA

Fri., June 25
Wing Ding. See page 22. BH. Reservations required: (314) 577-0291. $☎

Mid-America Regional Lily Society show. Saturday, noon to 5 p.m.; Sunday, RVC

Sat., June 26
Jurassic Bugs Family Day. 11 a.m. to 2 p.m. BH

Wed., June 30
Whitaker Music Festival. Dawn and the Electro Funk Assembly. See page 8. 7:30 p.m. CA

July

Average temperature: 80.2°F
Average precipitation: 3.9 in.

Sat.–Sun., July 3–4
TOMS "Style Your Sole" event. We supply the artist's tools, and you supply the talent. GGS

Wed., July 7
Whitaker Music Festival. Dogtown Allstars. See page 8. 7:30 p.m. CA

Fri., July 9
Case of the Dismembered Cricket. Youth sleuths examine a "crime scene" and question suspects to uncover the culprit of a caper. $15. Ages 9 to 11 with an adult. 10 to 11:30 a.m. BH. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

✿ **Members' Event: Family Picnic.** 6 to 9 p.m. Reservations required: (314) 577-9570. Information: (314) 577-5154. ☎

Sat., July 10
West County Daylily Club sale. RVC

Sun. & Fri., July 11 & 16
Bugaloo: Celebrating Seasons: Summer. $18. Ages 2 to 4 with an adult. Friday, 9:30 to 11 a.m. or Sunday, 12:30 to 2 p.m. BH. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

photo by Henry Domke

On View

in the Ridgway Visitor Center

through Aug. 15 | The Healing Art of Henry Domke/photography
Aug. 20 to Sept. 12 | Japanese calligraphy

Mon.–Fri., July 12–16
Camp EarthWays: Young Green Builders. $185. Ages 10 to 13. 9 a.m. to 4 p.m. EWC. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

Tues.–Thurs., July 13–15
Camp MBG: Gotta Grow. Ages 4 to 5. 9 a.m. to noon. $72. Registration required: www.mobot.org/classes. ☎

Wed., July 14
Whitaker Music Festival. FolknBluesGrass. See page 8. 7:30 p.m. CA

Sat., July 17
Healthy You, Healthy Planet Festival. See page 9.

Sat.–Sun., July 17–18
"Learn Green, Live Green" Public Tour Days at EarthWays Center. Guided tours at 11 a.m., noon, 1, and 2 p.m.; no reservations necessary. $3. (314) 577-0220, www.earthwayscenter.org.

Local foods tasting. GGS

Mon.–Fri., July 19–23
Camp MBG: Prehistoric Garden. Ages 9 to 11. 9 a.m. to 4 p.m. $185. Registration required: www.mobot.org/classes. ☎

Tues., July 20
St. Louis Water Gardening Society auction. 6 to 10 p.m. RVC

Wed., July 21

Whitaker Music Festival. Beyond Abbey Road. See page 8. 7:30 p.m. CA

Sat., July 24
Henry Shaw's Birthday. See page 9.

Sat.–Sun., July 24–25
Greater St. Louis Iris Society sale. RVC

Local foods tasting. GGS

Tues.–Fri., July 27–30
Camp MBG: Triassic Trek. $96. Ages 6 to 8. 9 a.m. to noon. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

Wednesday, July 28
Whitaker Music Festival. Kevin Lucas Orchestra. See page 8. 7:30 p.m. CA

Sat., July 31
Jurassic Bugs Family Day. 11 a.m. to 2 p.m. BH

August

Average temperature: 78.25°F
Average precipitation: 2.98 in.

Sun., Aug. 1
Online registration opens for over 175 fall and winter classes for youth and adults at the Garden and its family of attractions. View the complete catalog and register online at www.mobot.org/classes or call (314) 577-5140. ☎

Tues.–Thurs., Aug. 3–5
Camp MBG: Dino Discovery Camp. $72. Ages 4 to 5. 9 a.m. to noon. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

Wed., Aug. 4
Whitaker Music Festival. Gene Dobbs Bradford and the Blues Inquisition. See page 8. 7:30 p.m. CA

Aug. 7–15
Henry Shaw Cactus Society show and sale. Aug. 7, noon to 5 p.m.; Aug. 8–15. RVC

Sun., Aug. 8
Orchid Society of Greater St. Louis auction. Noon to 5 p.m. RVC

Mon.–Fri., Aug. 9–13
Camp MBG: Garden Designers. $185. Ages 9 to 11. 9 a.m. to 4 p.m. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

Wed., Aug. 11
✿ **Members' Event: Water Gardening.** 10 a.m. ST.

Fri. & Sun., Aug. 13 & 15
Bugaloo: Celebrating Seasons: Fall. $18. Ages 2 to 4 with an adult. Friday from 9:30 to 11 a.m. or Sunday from 12:30 to 2 p.m. BH. Registration required: www.mobot.org/classes or (314) 577-5140. ☎

Sat.–Sun., Aug. 14–15
TOMS "Style Your Sole" event. We supply the artist's tools, and you supply the talent. GGS

Sat., Aug. 21
Missouri Botanical Garden Daylily Association sale. RVC

Sat.–Sun., Aug. 21–22
"Urban Homesteading" Public Tour Days at EarthWays Center. Guided tours at 11 a.m., noon, 1, and 2 p.m.; no reservations necessary. $3. (314) 577-0220. Group tours may be scheduled online at www.earthwayscenter.org.

Fri., Aug. 27
Young Friends Be a Kid Again. See page 8. Ages 21 and up. $15 for Garden members, $30 nonmember. Reservations required: (314) 577-9570 or www.mobot.org/membership. Information: (314) 577-9532. ☎

Key

BH	Sophia M. Sachs Butterfly House
CA	Cohen Amphitheater
CHD	Children's Garden
CL	Climatron lawn
EWC	EarthWays Center
GGS	Garden Gate Shop
KC	Kemper Center for Home Gardening
JE	Jordan Education Wing in the Visitor Center
LS	Little Shop around the Corner
MC	Monsanto Center
MH	Monsanto Hall in the Visitor Center
RVC	Ridgway Visitor Center
SNR	Shaw Nature Reserve
SP	Spink Pavilion
ST	Shoenberg Theater in the Visitor Center
🌿	Sassafras
✿	Members-only event
☎	reservations required
$	fee required

www.plasticpot recycling.org

Visitor Information

Hours

- The Garden is open 9 a.m. to 5 p.m. every day except December 25.
- Outdoor walking hours begin at 7 a.m. Wednesday and Saturday

Admission

General admission: $8 ($4 for residents of St. Louis City and County); children 12 and under are free. Garden members receive free or reduced admission (based on level).

Children's Garden: $5 for children ($3 for Garden members' children). Adults admitted free. Members' children admitted free on Tuesdays.

Contact

Missouri Botanical Garden
4344 Shaw Blvd., St. Louis, MO 63110
(314) 577-5100 • www.mobot.org

EarthWays Center
3617 Grandel Sq., St. Louis, MO 63108
(314) 577-0220
www.earthwayscenter.org

Shaw Nature Reserve
P.O. Box 38 (Hwy. 100 off I-44)
Gray Summit, MO 63039
(636) 451-3512 • www.shawnature.org

Sophia M. Sachs Butterfly House
15193 Olive Blvd.,
Chesterfield, MO 63017
(636) 530-0076 • www.butterflyhouse.org

Shop

All proceeds benefit the Garden.

Garden Gate Shop
daily 9 a.m. to 5:30 p.m.
4344 Shaw Blvd., St. Louis, MO 63110
(314) 577-5137
www.gardengateshop.org

Little Shop around the Corner
Tues.–Sat., 10 a.m. to 4 p.m.
4744 Castleman Ave.,
St. Louis, MO 63110
(314) 577-0891 • www.littleshop.org

Gardening

Horticulture Answer Service
(314) 577-5143
Mon.–Fri., 9 a.m. to noon

Plant Doctor
Walk-in service, Kemper Center,
Mon.–Sat., 10 a.m. to 3 p.m.

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PERIODICALS
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japanese FESTIVAL

Labor Day Weekend
September 4–6
See page 9

Photo by Jamison Ford

MISSOURI
BOTANICAL
GARDEN

bulletin

Fall 2010 Vol. 98, No. 4 www.mobot.org

photo by Kristi Foster

President's Comment

When I arrived at the Missouri Botanical Garden in 1971 as its new director, the *Bulletin* was a black and white publication just half the size of the magazine you hold now. That issue contained articles on the construction of the Lehmann Building under way at the time, how to grow boxwood in the Midwest, and the dawn redwood and bald cypress trees.

The *Bulletin* has changed considerably since then. What hasn't changed is our commitment to inform and connect you with every facet of the Garden's mission, from our 79 acres on Shaw Boulevard, to our family of attraction sites throughout St. Louis and beyond, to the important research and conservation work our scientists perform in 38 countries around the world. When Henry Shaw founded the Garden in 1859, he intended for it to be a place of science and discovery as well as great beauty. I think he would be delighted and proud of how his gift to St. Louis has grown and flourished.

There remains much to do. Of the approximately 400,000 species of plants believed to exist, nearly 50,000 remain to be discovered. The pressures being brought to bear on the survival of those plants has never been greater. The Garden's Science and Conservation Division maintains operations in some of the world's most threatened biodiversity hotspots, such as the Amazonian central forest region of Peru, where the Center for Conservation and Sustainable Development works with local communities to help conserve and manage their resources and sustainably coexist with nature.

Your membership and contributions have an impact beyond the Garden's walls and help support our activities worldwide. The achievements this institution has accomplished in the past 39 years would not have been possible without the collective efforts and commitments of our staff and volunteers; the communities in which we operate; and our generous members, donors, and supporters.

For nearly four decades, it has been my privilege to work alongside the Garden's staff and supporters in this essential endeavor. As president emeritus, I look forward to supporting the Garden's incoming president, Dr. Peter Wyse Jackson, and continuing that work with you in the months and years to come.

Peter H. Raven

Dr. Peter H. Raven, *President*

To discover and share knowledge about plants and their environment in order to preserve and enrich life.

– mission of the Missouri Botanical Garden

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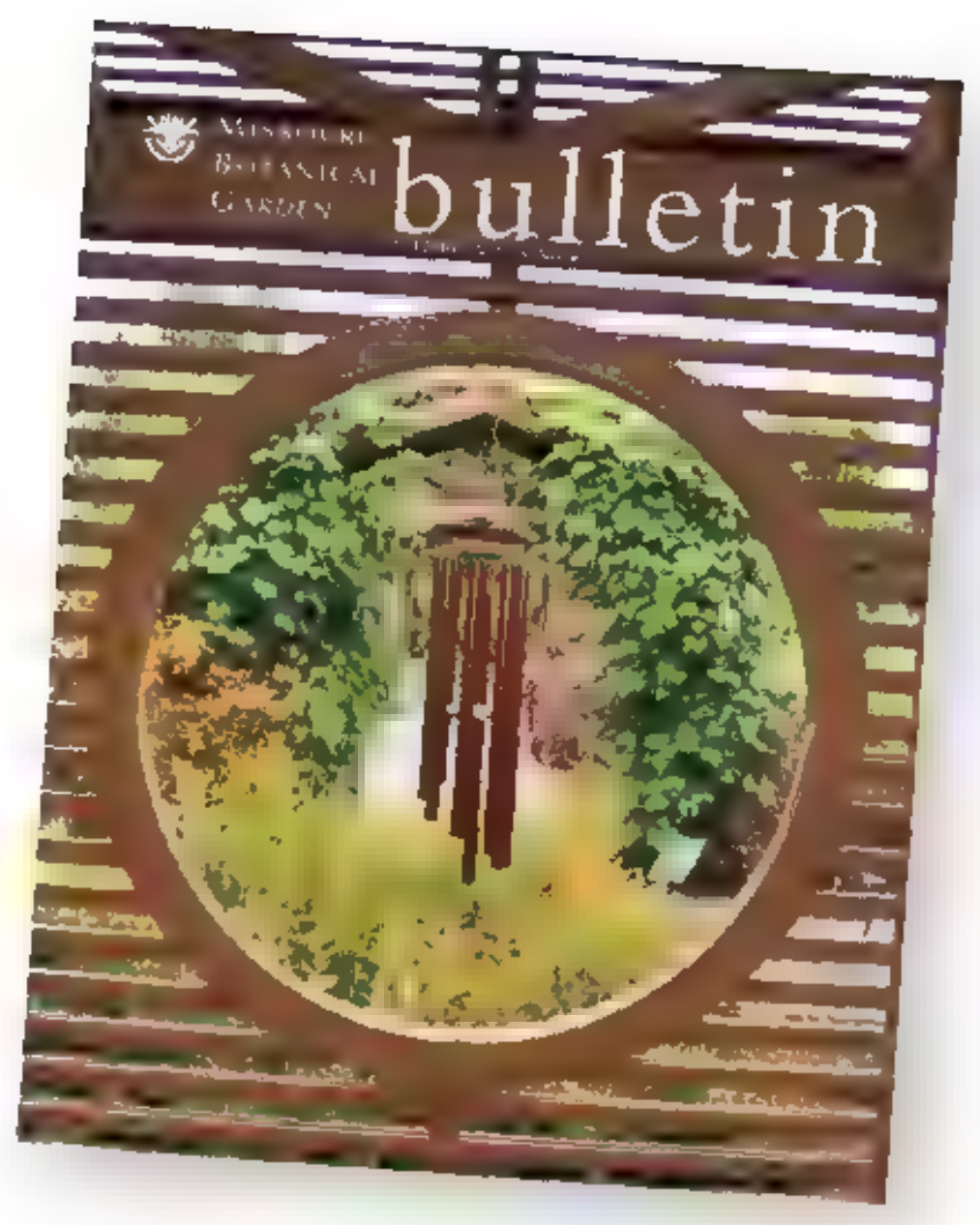

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Garden Hours

The Garden is open 9 a.m. to 5 p.m. every day except December 25.
Outdoor walking hours begin at 7 a.m. Wednesday and Saturday.

General Admission

$8 ($4 for residents of St. Louis City and County); children 12 and under are free. Garden members receive free admission (based on level).

Children's Garden: $5 for children; adults admitted free. ($3 for Garden members' children.) Members' children admitted free on Tuesdays.

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Welcome, New Trustees

At their May meeting, the Garden's Board of Trustees welcomed two new members:

Sharon D. Fiehler

Sharon D. Fiehler is executive vice president and chief administrative officer of Peabody Energy Corporation, the world's largest private sector coal company. She began her career with Peabody in 1981 as manager of salary administration.

She earned her MBA from the University of Missouri–St. Louis and serves on the boards of The Federal Reserve Bank of St. Louis, Junior Achievement of St. Louis, the Saint Louis Zoo Association, and the Chancellor's Council of the University of Missouri–St. Louis. She is a 2008 YWCA Leader of Distinction Award recipient.

Daniel J. Ludeman

Daniel J. "Danny" Ludeman, president and chief executive of Wells Fargo Advisors, came to St. Louis in August 2007 from Richmond, Va. He leads the brokerage operation headquartered in St. Louis with 5,000 local employees and 31,000 nationwide. An MBA graduate of the College of William and Mary, Ludeman serves on the boards of the United Way and RCGA, where he is chairman of economic development, and is also a member of Civic Progress. He is a board member of the College of William and Mary School of Business Administration, the Virginia Foundation of Independent Colleges, and the University of Richmond.

photo by Lindsay Moser

Dr. Peter Raven, Lisa and Renee Queen, First Lady Georganne Nixon, and Dr. Pat Raven.

Governor's Wife Speaks at *Healthy You, Healthy Planet* Festival

Missouri First Lady Georganne Nixon spoke at the Garden on July 17 as part of the second annual *Healthy You, Healthy Planet* festival sponsored by Siteman Cancer Center at Barnes-Jewish Hospital and the Washington University School of Medicine. Mrs. Nixon discussed the "Children in Nature Challenge," which directs state agencies to encourage Missouri communities to give children more opportunities to learn about and experience nature first-hand. Connecting children with nature improves children's physical, mental, and emotional well-being.

Garden Researchers Investigate Traditional Malaria Remedies

Garden founder Henry Shaw died in 1889 due to complications from malaria. The disease, though treatable with medication, still claims nearly one million lives around the world every year. Researchers with the Garden's William L. Brown Center have identified 17 plant species used as traditional anti-malarial and fever remedies among communities in northern Peru. Their study was funded through a grant from the National Institutes of Health and was published May 28 in the journal *Ethnobotany Research & Applications*.

Of the plants identified, most of them have not yet been tested to determine their effectiveness, said Dr. Rainer Bussmann, the Garden's William L. Brown Curator of Economic Botany and director of the Brown Center, who co-authored the report with Sacred Seeds Program Manager Ashley Glenn. The next steps include testing the plants individually for toxicity and then in combination for both efficacy and toxicity. Typically, traditional healers do not use a given plant by itself, and different combinations may enhance their effectiveness while also lowering toxicity.

The investigation and discovery of new malaria treatments is of particular interest as use and misuse of over-the-counter remedies have led to the widespread appearance of resistant parasites, and global climate change has increased the areas susceptible to the spread of malaria vectors.

The William L. Brown Center at the Garden is dedicated to the study of useful plants, understanding the relationships between humans, plants, and their environment, and the conservation of plant species and preservation of traditional knowledge for the benefit of future generations.

(Learn more about the Garden's research and conservation activities in Peru on page 10.)

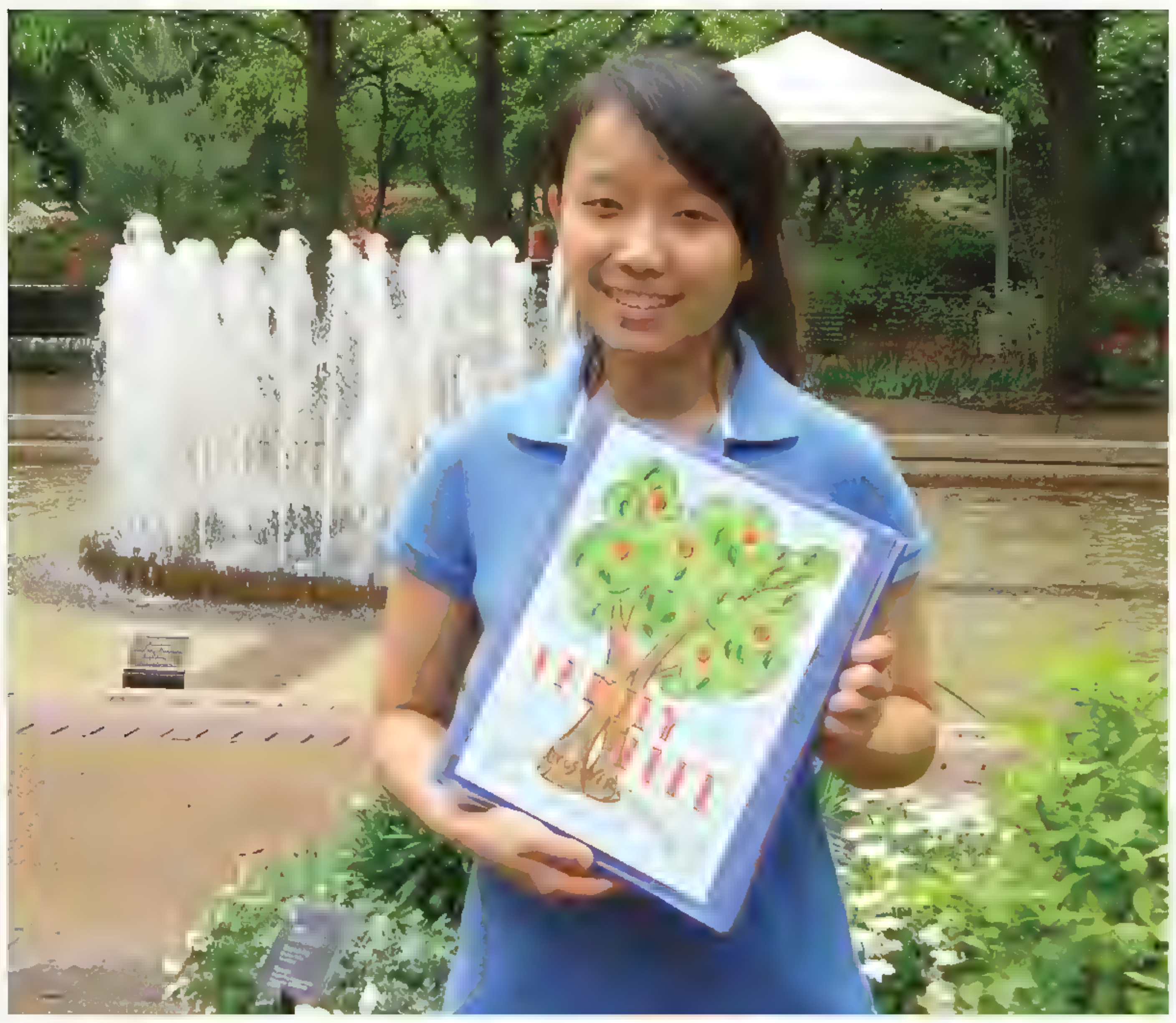
photo by Jessica Kester

Katherine Yutung Ren is this year's Power of Plants contest winner.

Power of Plants Winner

Congratulations to Katherine Yutung Ren, an eighth-grader at Wydown Middle School in Clayton, who was the grand prize winner in the Garden's second annual *Power of Plants* contest. Sponsored by the Monsanto Fund, the contest challenged youth in kindergarten through 12th grades to pick a plant, learn about its qualities, characteristics, and the ways it helps people, and tell its "superhero" story through a creative two- or three-dimensional work of art. Over 400 submissions were received from individuals and groups in the bi-state region. Katherine's winning entry was a family scrapbook album for the American persimmon (*Diospyros virginiana*), which served as the inspiration for the newest Power of Plants mascot, Ginny.

Entries for the 2010–2011 contest are being accepted through January 31, 2011. For more information, visit www.mobot.org/power.

Corporate Partner Profile: New Chapter, Inc.

The Corporate Partners program is designed to strengthen the relationship between the Missouri Botanical Garden and the corporate community in the greater St. Louis metropolitan region and beyond. Corporate Partners at the Principal level offer support and leadership at the highest level, and the Garden recognizes their contributions periodically through features in the Bulletin. *Visit www.mobot.org/corporate for more information on the Corporate Partners program.*

New Chapter Inc. was founded in 1982 by Paul and Barbi Schulick out of a passion to promote health through innovative botanical formulations delivered as whole foods and herbs. A certified organic manufacturer of dietary supplements, New Chapter is a foundation member of the Organic Center and a member of the Sustainable Packaging Coalition.

New Chapter operates Luna Nueva, a 200-acre biodynamic, organic and sustainable ginger and turmeric farm in Costa Rica. Under the leadership of New Chapter CEO Tom Newmark, its mission has expanded to become an educational resource center and help Costa Rican farmers learn and adopt sustainable agriculture practices. In collaboration with the Monteverde Conservation League US Inc., New Chapter has purchased and is helping to restore forest on a tract of land between Luna Nueva and the 54,000-acre Children's Eternal Rainforest, creating a wildlife corridor for migrating species. New Chapter devotes 10 percent or more of its after-tax profits to the support of sustainable farming practices, the conservation of tropical rainforests, and the sacred seeds that sustain all herbal traditions.

At the Missouri Botanical Garden, New Chapter is a strong supporter of the William L. Brown Center and the Sacred Seeds Initiative. Sacred Seeds is a network of sanctuaries for medicinal and other useful plants that are vulnerable to loss of habitat, inappropriate harvesting, or climate change. New Chapter and the Brown Center are working to encourage and create Sacred Seeds Sanctuaries around the world with communities and botanical research institutions. To learn more, visit www.newchapter.com.

Garden Banners Get Second Life as Totes

The Missouri Botanical Garden believes in recycling. Our horticulture staff composts nearly 100 percent of the Garden's leaves and woody debris, and we print documents on 100 percent post-consumer recycled paper. Now even the Garden's colorful outdoor vinyl banners are finding a new use as carrier bags and garden totes.

Sew Sack Sew, a local, family-owned small business, takes donated banners and turns them into bags, each cut and sewn individually. For more information, visit www.sewsacksew.com.

Adopt-A-Plant for Fall

Adopt a plant from the Missouri Botanical Garden and help further the Garden's mission!

For $30, Plant Parents receive a certificate of adoption that includes a five-by-seven-inch image of the plant, suitable for framing, as well as additional information about the plant. Plant Parents also will have their names listed on the Garden's website each season. Upgrade to $40 and take part in a Garden walking tour on September 30 highlighting plants featured for fall adoption.

Plants available for adoption beginning September 1 are:

New England aster | The royal purple blooms of the New England aster (*Symphyotrichum novae-angliae*) provide a burst of color as we enter fall. Look for it in the Boxwood Garden, near the William T. Kemper Center for Home Gardening, and in border gardens near Ridgway Visitor Center.

Chrysanthemum | Mums, with their fragrant blooms and dark green leaves, beautifully complement the deep, vibrant hues of autumn. Find mums everywhere in the Garden but especially in the Japanese Garden and Kemper Center.

Short's goldenrod | Dr. Charles Short found *Solidago shortii* growing in Kentucky in 1840. It was believed for decades to be extinct until a new population was discovered in the mid-20th century in Kentucky. In this century, ecologists found the plant in Indiana. Today, the Missouri Botanical Garden is the primary custodian of this plant.

The Garden will introduce three new plants for adoption each season. To adopt a plant today, visit www.mobot.org/adopt.

photo by Lindsay Moser

New Bavarian Garden Opens

The Pfautch Bavarian Garden, which Roy Pfautch dedicated in memory of his father, has been completed just south of the Lehmann Building, across from the Strassenfest German Garden. Previously, Roy, a member of the Garden's Board of Trustees, generously provided a tranquil wooded area at the west end of the English Woodland Garden in memory of his mother. Distinctive features of the garden include benches hewn out of logs and a mural inspired by traditional Bavarian folk art, painted by local artist Grace McCammond of Signature Arts, that decorates the side of an experimental greenhouse.

Garden a platinum sponsor of USGBC-St. Louis

The Missouri Botanical Garden has been named a platinum-level supporter of the St. Louis Regional Chapter of the U.S. Green Building Council for 2010. The Council's mission is to advance "implementation of green building concepts, technologies and principles that promote environmentally responsible, profitable and healthy places to live and work."

The Garden helped establish the USGBC-St. Louis in 2001 through the work of the EarthWays Center. Since then, St. Louis has become a national leader in advancing green building design, construction, and operations, resulting in measurable reductions in carbon emissions, building construction waste, and water use.

"Sustainability is the central theme of the Garden's strategic plan, and our partnership with USGBC is in line with that core value," said Deborah Frank, Vice President of Sustainability. "The Garden promotes responsible use of resources to protect biodiversity around the world, and that includes what we do within our own backyard."

photo by Deb Lalumondier

Where Did the Camellias Go?

While the Linnean House is undergoing extensive renovations, the Garden's collection of camellia plants is taking a vacation in the country. In all, 67 plants have been sent to Buy the Bunch Florist, located in Ste. Genevieve, where they will stay until this spring, when work is completed on the Linnean House and the weather is warm enough to return the plants to their home on Garden grounds. Renovation of the Linnean House is made possible thanks to a generous gift from the Mabel Dorn Reeder Foundation.

photos by Sonya Buerck

Volunteer Service Recognition

On Tuesday, June 8, the Garden celebrated the commitment of its volunteers at the annual volunteer service recognition luncheon. Awards were given to volunteers for service commitments of 10, 20, 30, and, in one case, 40 years! Without the skills and dedication of its corps of volunteers, the Garden could not operate at its current level of excellence.

Here's to 40 years!

Some of Melanie Fathman's earliest memories are of taking botany walks with Edgar Anderson, the former director of the Garden and founder of the St. Louis Herb Society and the Herb Society of America. As a member of the St. Louis Herb Society, Melanie has held many positions, including the presidency, along with helping maintain the herb garden and propagate herbs in the greenhouses. Melanie has taught courses for the Herb Society and the Speakers' Bureau as well as adult courses in cooking and the history of landscape architecture. She has worked on three of the four cookbooks the Herb Society has produced. One of Melanie's most rewarding projects was a collaborative effort with two of her Herb Society cohorts, Barb Ottolini and Pat Leigh. They produced the book *It's All in the Name: A Guide to the Botanical Names of Some Herbs and Useful Plants.*

Forty-year volunteer: *Melanie Fathman (second from right) is joined by (from left) Board of Trustees Chairman Arnold Donald; Melanie's husband, Dr. Anthony Fathman; her daughter, Liz Fathman; and Garden President Dr. Peter Raven.*

Thirty-year volunteers: *Rita Hirson, Toni Ansboro, with Arnold Donald (left) and Dr. Peter Raven. Not pictured: Joyce Knobbe and Mary Seright.*

Twenty-year volunteers: *Front row: Jeanne Klebusch, Carol Berry, Shirley Anton Suntrup, Betty Smith, Chick Buehrig. Back row: Jerry Overman, Rhonda Porche-Sorbet, Dr. Peter Raven, Anna Murphy, Lois Raley, Arnold Donald. Not pictured: Dennis Chambers, Monica Clapper, Berta Dulle, Pat Holt, Maryellen May, Sue Palmer, Susie Schulte.*

Ten-year volunteers: *First row: Mary Kloeckner, Carol Wellman, Betty Salih, Sandy Sher, Alice Mitchell, Jerry Castillon, Wallis Warren, Linda Kalicak, Robert Weaver. Second row: Glenda Finnie, Alice Koritta, Anne Frohman, Cheryl Rafert, Barbara Lehmier, Donna Steinhoff, Anne Kirkpatrick, Pauline Ashton, Lisa Nansteel, Phyllis Weber, Shirley Bardenheier, Carol Swink. Third row: Robert Faupel, Don Caldwell, Jim Fellhauer, Arnold Donald, Dr. Raven, John McCormack, Marie Jaeger, Linda Waugh, Emil Beier, Julian Fleischman, Bob Thornberry. Not pictured: Lee Adams, Eva Marie Adams, Audrey Beatty, Polly Coxe, Judy Evans, Kitty Ferrell, Natalie Feste, Barbara Floom, Pam Fournier, Mil Glaser, Emery Harmon, Pam Hass, Laure Hullverson, Jerry Lehman, Dorothy Martels, Lavonne McClain, June Mueller, Mary Ellen Neilson, Bernadine Richard, Nancy Schikore, Nancy Solodar, Betty Struckhoff, Shirley Valentino.*

ECO ACT

The Saigh Foundation

Environmental Leadership Program

Inspiring Future Environmental Leaders

by Meg Hoester, ECO-ACT Supervisor and
Kristi Ruggles, Donor Communications Coordinator

Nicole Miller-Struttmann has fond memories of being an ECO-ACT student in the fourth grade at Holy Redeemer Elementary School. ECO-ACT "really solidified in me at a young age that the environment was important to me," she says.

Currently a Ph.D. candidate in Ecology, Evolution, and Population Biology at Washington University, Nicole remembers ECO-ACT as a chance to explore ecological and environmental issues in-depth. Though her parents were relatively eco-friendly, she says ECO-ACT "was the first opportunity I had to give numbers to things and names to environmental theories and ideas."

Later, as a high school student at Nerinx Hall, Nicole had a chance to give back as an ECO-ACT leader, teaching a new group of fourth graders about the environment: "What was really cool about the high school program was that I could actually see the students learn and hope that I was having the same impact on them as I felt in grade school."

The Missouri Botanical Garden's Saigh Foundation ECO-ACT Environmental Leadership Program engages St. Louis-area teens in learning and teaching about ecological concepts and environmental issues. Students participate in a variety of activities including teaching fourth graders once a week, summer training, and weekend outings and workshops throughout the school year. The weekend outings were some of the most fun ECO-ACT experiences, Nicole says. From caving and rock climbing to spending time at the Shaw Nature Reserve, Nicole appreciated the time spent with her fellow students.

"I think it's a good way to build camaraderie between students from different schools," she says. "Growing up in Webster Groves, it was nice to be able to get outside and not have everything based in the city." Many alumni of the program note that they gained a new sense of connection to the natural world during their ECO-ACT experience.

photo courtesy Nicole Miller Struttmann

Nicole-Miller Struttmann

Meeting people from different areas and varied backgrounds was also a great learning opportunity for Nicole. "Just getting to know a lot of people from a non-Catholic school background was different and new for me," she says.

At Washington University, one of Nicole's research projects focuses on investigating glade-endemic plants in Missouri to see how stress adaptations might affect their floral traits and their pollinator interactions. She teaches at the college level and participated in a graduate student program similar to ECO-ACT. The Young Scientist Program at Washington University involves graduate students teaching inner-city high-school students about general science concepts and theories in an interactive, hands-on manner. When Nicole began working with the program, it was focused on evolution and biomedical sciences. Since then, she has established an ecology-focused portion.

Nicole and colleague Kyra Krakos also initiated a program in partnership with the Missouri Botanical Garden called Students in the Garden. Graduate students are paired with Garden researchers and take a course on basic ecological principles related to the research, which includes a wide variety of guest lecturers.

For Tanya Cross, Science Is Everything

Tanya Cross was always ready for the question, "What do you want to be when you grow up?"

She wanted to teach. Her mom was a teacher, and as a child Tanya loved to play school. (Her favorite part of pretend-teaching was grading papers. That changed.)

What Tanya did not know as a child is that she would grow up to teach science. That changed, too, when she participated in ECO-ACT in high school. Throughout the program, Tanya canoed, backpacked, camped, and generally got her hands dirty. In the meantime, she received real experiences in a classroom.

"Without ECO-ACT, I would not have gone into science," she said. "It led me outside exploring and learning to see things around me like water systems, animals, and insects. I enjoyed being able to teach the younger students, but the best part of the experience for me was being taught by ECO-ACT leaders in the outdoors."

Today, Tanya brings that same sense of discovery to elementary schoolchildren. She is a program specialist with MySci, a science education program presented by the Monsanto Fund and developed by Washington University, the Saint Louis Science Center, the Missouri Botanical Garden, and the Saint Louis Zoo.

The program includes a pair of grab-your-attention green trailers, the MySci Investigation Stations, which travel to schools throughout the region. The interior of the Investigation Station is like a "science museum" for children to touch and explore. Tanya said the vehicle makes science tangible.

"The way we come into this life is science," she said. "Everything around us is science. We can live our lives better if we understand what is going on around us—if we understand science."

photo by Kristi Ruggles

Tanya Cross

She credits the Garden and ECO-ACT with awakening in her this love for science and the confidence to teach it to others.

Though she didn't decide on a science career until college, Nicole says her experiences in ECO-ACT opened the door to the importance of science in her life. Because of ECO-ACT, "I had always maintained that interest… and I was made more aware of how science is an important public issue."

Creating lesson plans and undertaking the organization needed to teach during her ECO-ACT experience has given Nicole a great appreciation for teachers and teaching.

"To some degree you teach something any time you are communicating to anybody in any job," she says. "A lot of what we do as scientists is just trying to communicate with other scientists, but increasingly it is communicating with the non-science community that is really important."

About ECO-ACT

The Missouri Botanical Garden's Saigh Foundation ECO-ACT Environmental Leadership Program engages St. Louis area teens in environmental issues and education. This unique program has become a stepping-stone for introducing students to educational and/or environmental careers as well as becoming role models and ecologically literate citizens. A collaboration between the Garden and area schools, the program offers high school students course credit in science. Students gain knowledge and skills pertinent to their interest in making a difference in the community, along with awareness and respect for the natural world through firsthand experiences in nature and through classroom teaching in an elementary school.

ECO-ACT is currently recruiting new schools. For more information, call (314) 577-0241 or visit www.mobot.org/education/ecoact.

The Center for Conservation & Sustainable Development

Protecting Peru's Biodiversity in *la Selva Central*

Clockwise from top left: Members of the Yanesha community of Santa Rosa de Chuchurras with Rodolfo Vásquez, the Garden's program director in Peru. Schoolchildren in Santa Rosa Chuchurras enjoying a lunch of rice with zucchini grown in their school vegetable garden. The tree fern Dicksonia, *covered with* Sphagnum, *Yanachaga-Chemillén National Park, central Peru. CCSD provides the Santa Rosita Women's Association with tools to clear plots and cultivate crops for consumption by the pacas they raise. Heavy rains triggered a series of great landslides of stone and earth that blocked 25 kilometers of the access road in the area where Garden researchers were working. Members of the Santa Rosita Women's Association clear weeds from* Oenocarpus bataua, *one of the Amazonian fruit trees planted by the women to supplement the diet of the* pacas.

In an area slightly smaller than the state of Alaska, Peru has more than 19,000 species of plants—about as many as occur in all of the United States. Of those, at least 28 percent are found nowhere else in the world. Yet Peru's biodiversity—one of the richest in the world—is also one of the most threatened.

For more than 30 years, the Missouri Botanical Garden has worked to increase knowledge of Peru's extraordinarily rich flora. Since its founding in 2001, the Garden's Center for Conservation and Sustainable Development (CCSD) has amplified this mission. In the Amazonian central forest region of Peru (*la selva central*), the work concentrates in three Protected Natural Areas on the eastern flank of the Andes in the Palcazu River watershed: the Yanachaga-Chemillén National Park, the San Carlos-San Matías Protected Forest, and the Yanesha Communal Reserve. These areas lie within the homeland of the indigenous Yanesha people and harbor an estimated 6,000 plant species.

Although relatively inaccessible, the region faces intense pressure from deforestation. Earlier this year, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) added the region to its Worldwide Network of Biosphere Reserves, highlighting the importance and vulnerability of its biodiversity.

Sometimes, just getting to the flora can be a challenge. On a trip into the field in February 2009, the Garden's program director in Peru, Rodolfo Vásquez, described how torrential rains triggered heavy landslides that blocked the only road accessing the field site. After waiting for three days for the road to become passable,

VASO DE LECHE
CC.NN
YANESHA

photos courtesy MBG Science and Conservation

he and other Garden botanists had no choice but to proceed on foot with all of their equipment.

"We had to slog through the mud that covered the road, often dodging to avoid the stones that fell from the top of the road-slope or crossing torrents of water and mud," he reported.

Collection and conservation are vital parts of the Garden and CCSD's activity in Peru, but they're only one aspect of the story. CCSD is dedicated to helping local residents develop the capabilities to preserve and manage their biological resources for their own benefit. In Peru, Garden field botanists and conservationists train university students, young professionals, and community members in the skills needed to understand and manage their own natural resources and sustainably coexist with nature.

CCSD has worked since 2001 with the indigenous Yanesha people living in the Palcazu River watershed. In this area, one of South America's most diverse but critically threatened regions, CCSD's work focuses on securing biodiversity while helping the Yanesha build sustainable communities. CCSD team members are providing technical assistance in the cultivation of native fruit trees to indigenous schools as well as to community organizations such as the Association of Women for Management of Wild Species. The women grow fruits that feed *Agouti paca*, small mammals they are raising initially as a food source and, eventually, to generate supplemental income through sales in nearby markets. The project is the first of several aimed at reducing wild harvesting, using the natural resources of the region sustainably, and generating employment opportunities.

About the Center for Conservation & Sustainable Development

Established in 2001, CCSD explores and implements new, science-based approaches to the conservation and sustainable use of plant diversity. CCSD makes plant diversity knowledge, accumulated by Missouri Botanical Garden researchers over many years, usable for conservation planning and decision-making. CCSD operates in some of the most important centers of biodiversity around the world. Work concentrates in the geographical areas identified as priorities for the Garden—areas that are relatively unexplored and estimated to be rich in biodiversity, yet are severely threatened by habitat loss—including the tropical Andes, Mesoamerica, Madagascar, and Vietnam.

The core of CCSD's mission is the development of local capabilities for communities to manage their biological resources for their own benefit as well as the common good. Developing nations, home to 80 percent of the world's population and about 80 percent of its biodiversity, have no more than 10 percent of the world's scientists and engineers. The tropics in particular are home to at least two-thirds of all known plants and animals—along with a variety of problems, including poverty, disease, hunger, and explosive population growth. CCSD strives to help conserve the exceptional biodiversity of these regions by enabling people to use and manage resources sustainably.

WINTER SALAD GARDENING

Keep the Harvest Going Past Summer's End

by Benjamin Hudson, Fruit and Vegetable Horticulturist

photos courtesy knittingiris and Jeff Cushner/flickr.com

Cold frames (left) and raised beds help keep soil warm and extend the growing season.

After the first hard frost signals the end of the traditional growing season, many backyard gardeners heave a sigh of relief and put their gardens on the back burner until next spring. The diehard gardeners, however, have already buried their noses deep in next year's seed catalogs. Why dream of spring, though, when you can continue your backyard garden through the fall and winter months by growing a winter salad garden?

Choose a sheltered, sunny spot and prepare your garden bed just the same as you did for your summer garden. For a fall harvest, begin seeding your garden between late July and mid-August, and be sure to continuously seed every couple of weeks thereafter to stagger the harvest through fall and into winter. For seedlings that will be emerging in late summer, be sure to keep them well-watered to prevent wilting.

Pay close attention to the weather and protect the plants as the temperature drops below freezing. Many techniques and materials can be used to keep the salad garden producing well into winter:

- **Windbreaks and Walls** can add from 10° F to 15° F of warmth to your garden by blocking the cold winter winds and using the free solar energy of the sun.
- **Cloches** can best be described as portable greenhouses of various designs. Materials used to create a cloche range from very stiff wire frames holding glass panes, to clear, gallon-size plastic bleach or soda bottles with their bottoms removed. Be aware that cloches have to be removed on bright, sunny days to prevent excessive heat buildup.
- **Floating Row Covers** are made of a lightweight, white fabric such as Reemay© placed directly on top of and supported by the plants. Floating row covers primarily help keep the frost off and can extend the growing season by several weeks.
- **Low Tunnels** are created by placing hoops over each row of vegetables and covering the hoops with plastic sheeting. These low tunnels protect plants from frost and warm the air inside the tunnel, allowing cold-hardy plants to grow even in the

dead of winter! Just like cloches, they may need to be vented on bright, sunny days.

- **Raised Beds** typically are constructed of stone, bricks, concrete, recycled plastic lumber, or untreated lumber. The soil in a well-made and maintained raised bed can be between 8° F and 12° F warmer than the same soil in the surrounding garden areas. Another advantage is the accessibility of the beds and the decreased need to bend over to work in, or harvest from, the raised beds.
- **Cold Frames** are permanent structures that considerably lengthen the growing season. Cold frames can be constructed from scratch, by purchasing a kit, or by using an old window sash. The cold frame should face south for maximum exposure to sunlight. To provide ventilation, partially open your cold frame during sunny, warm weather. During cold snaps, cover the cold frame with burlap or heavy cloth for extra warmth.
- **Hot Beds** are cold frames with a source of bottom heat such as electric heating cables.

Although the winter salad garden can be planted as early as late July, it is possible to plant yours now by using the techniques described here. Excellent fall crops that can be planted at this time include spinach, leaf lettuce, kale, and chard. By covering these crops with a floating row cover, they can be grown well into winter. Other good crop choices include Chinese cabbage, radishes, turnips, kohlrabi, beets, and carrots. (Short varieties of carrots will develop faster and perform better in our heavy soils.)

SUGGESTED PLANTS FOR A WINTER SALAD GARDEN

Semi-Hardy	Hardy	Very Hardy
Lettuce (20–25° F)	Cabbage (12–20° F)	Leeks (5–20° F)
Cauliflower (25–28° F)	Broccoli (18–22° F)	Parsnips (tops 15° F; roots 0° F)
Carrots (tops 10° F; roots 30° F)	Brussels Sprouts (15–20° F)	Spinach (8–12°)
Beets, Chard (15–25° F)	Mustard (10–15° F)	
Peas (18–25° F; blossoms 30° F)	Kale (10–15° F)	

* The temperature listed for each plant is the coldest temperature that plant can withstand and still grow.

Learn More…

Three Season Vegetable Gardening: Methods of Season Extension
Extend your growing season as you learn a variety of techniques to warm the air and soil, the importance of plant choice, and ways to keep fresh food in the garden longer.

$16 members, $20 nonmembers
Tuesday, October 12
7 to 8:30 p.m.
EarthWays Center

Organic Vegetable Gardening: Fall and Spring
Learn the theory and practice of vegetable gardening using organic methods. Topics covered will include garden planning for fall, winter, and spring; soil preparation; mulching; composting; insect control; and seed selection. Designed for adults only.

$25 members, $32 nonmembers
Thursday, September 8
7 to 9 p.m.
OR
Saturday, November 6
9 to 11 a.m.
Ridgway Visitor Center – Missouri Room

Register today at www.mobot.org/classes

photos courtesy Missouri Botanical Garden PlantFinder and Tammy Palmier

Plants well suited for cultivating in colder weather include (from left) kale, cabbage, and beets.

Going Native with Squash Bees

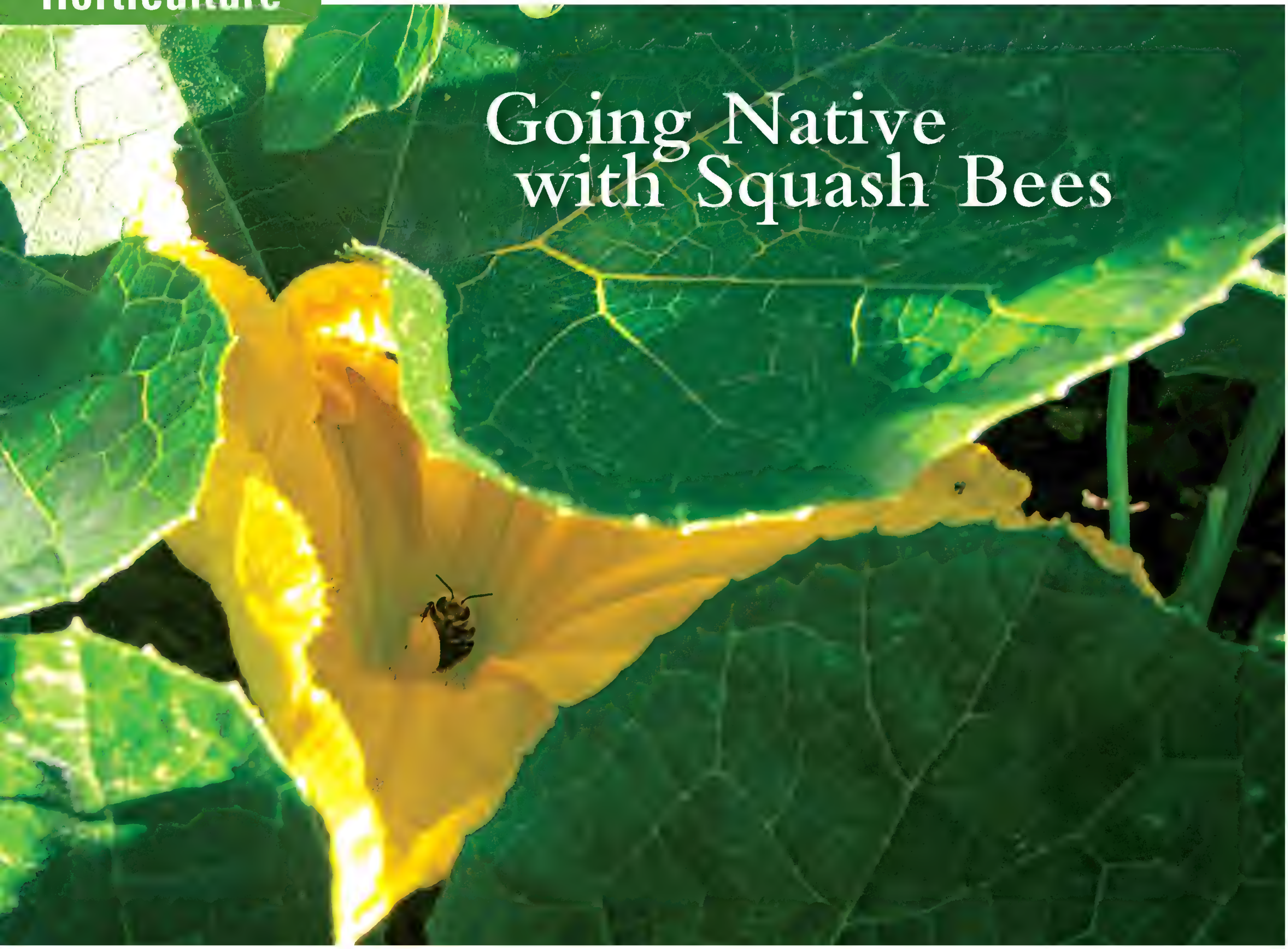

photo by Jennifer Hopwood

Squash bees are entirely dependent on the pollen and nectar of members of the squash family Cucurbitaceae.

by Mike Arduser, Natural History Biologist, Missouri Department of Conservation

and Jennifer Hopwood, Midwest Pollinator Outreach Coordinator, The Xerces Society for Invertebrate Conservation

Pollination is one of those services nature provides that most of us take for granted. We reap the obvious benefits—ripe strawberries, blueberries, tomatoes, sunflower seeds—and enjoy the not-so-obvious ones—beautiful natural communities like prairies, glades, and forests. The plants that make up these habitats—coneflowers, gentians, shooting stars, Indian grass, white oak, trout lily, and countless others—will not reproduce unless they are pollinated, some by wind (grasses, oaks, hickories) but the vast majority by certain kinds of insects. In the same way we depend ultimately on pollination to produce much of our food, the great diversity of animals in those natural communities depends on pollination services for their survival.

Of all the pollinating insects (bees, flies, butterflies, moths, beetles, and some others), bees are by far the most important group. Only bees construct nests and feed pollen to their young, and this obligation requires bees to repeatedly visit flowers, usually resulting in ample and abundant pollination in a population of plants and in a community.

The honey bee is the "bee" we all think of when we hear the word. Like most of our agricultural animals, this bee is an import. Early colonists brought it from the Old World for its wax and honey, and it has since spread across much of the continent, through commerce and on its own. Our native bees in the Midwest (there are well over 600 different kinds) are quite different: most are solitary, annual species that nest in the ground, are in flight for only a short time (a month or so), don't make honey, and are not managed for pollination the way the honey bee is. Unlike the honey bee, which will collect pollen and nectar from nearly any plant, many native bees are pollen specialists and have evolved very specific, dependent relationships with certain kinds of plants. These bees are found only where their "host" plants are found.

One of the most interesting groups of "specialist" bees are the squash bees: fast-flying, early-rising, large, fuzzy, friendly bees entirely dependent on the pollen and nectar of certain species in the squash family (*Cucurbita* spp., Cucurbitaceae, including pumpkins, acorn squashes, gourds, and others). Native to the New World, both squash bees (about 20 species in the genera *Peponapis* and *Xenoglossa*) and the *Cucurbita* lineage evolved together, and several squash bee species have been following the domestication and spread of various annual *Cucurbita* over the past 10,000 years or so.

Exactly how squash bees locate squash plants isn't entirely clear, but today, two species of squash bee (*Peponapis pruinosa* and *Xenoglossa strenua*) occur just about anywhere *Cucurbita* spp. are grown, as far north as Maine, Michigan, and Wisconsin, and within large cities like St. Louis (see below). Squash bees nest in the ground near their host plants; heavy, thick mulching tends to discourage them, so some bare soil in a garden is good for squash bees and other native bees.

Squash and pumpkin flowers are very large, showy, and ephemeral, and cannot self-pollinate because the flowers are either male or female, not both. The flowers open in the pre-dawn, and usually last but a few hours before they wilt, and the remaining pollen in them loses much of its viability. Their pollination window is therefore quite short, and therein lies the importance of the squash bees: they start working flowers and collecting pollen while it is still dark, long before honey bees or other native bees are active, and close up shop before noon in most cases. Squash bees are the premier example of undomesticated, unmanaged native bees serving as primary pollinators for an economically important group of plants.

Males and occasionally females "sleep" or loaf in closed or unopened flowers—peek inside a pumpkin flower just after dawn this summer, and you are likely to see the small, fuzzy head of a squash bee looking back at you.

photo by Jennifer Hopwood

This community garden, established in 2009, is already frequented by Peponapis pruninosa.

Squash Bees in the City

by Jennifer Hopwood and Mike Arduser

Rural and urban gardeners alike rely on bees to pollinate fruits and vegetables, but for specialist bees, urban environments may not be particularly inviting. It might be expected that squash bees, as specialists of *Cucurbita* spp., would be absent or in small numbers in large cities where gardens with pumpkins and zucchini are few and far between. Surprisingly, in a 2009 survey of 25 community gardens in St. Louis, *Peponapis pruninosa* (squash bees) were present in every garden, even those with just a single squash plant. Additionally, *P. pruninosa* were the most abundant visitors to the community garden squash plants. Squash bees were even found in gardens that were established earlier in the growing season, indicating that squash bees must be extremely adept at identifying even very small patches of squash—good news for urban gardeners who enjoy pumpkin pie and zucchini casserole.

photos by Hope Breidenbach and Christy Siebert

Visitors to the Green Homes Festival can help paint a Metro bus, and kids can build and race a solar car.

photo by Mark Deering

EarthWays greenHOMES FESTIVAL

efficiency. sustainability. renewable energy.

Saturday September 25, 10 a.m. to 6 p.m.
Midtown St. Louis • www.greenhomesSTL.org

Now in its ninth year, this event once again fills an entire city block. Have fun learning how your sustainability choices can protect plants and their environment.

Bring your home and lifestyle ideas and discuss your projects with over 90 exhibitors who are experts in:

- Solar, wind, and geothermal energy systems
- Green home improvement and homebuilding
- Non-toxic home maintenance
- Reducing, reusing, recycling, and composting
- Alternative transportation

"Made from Scratch"—the Green Marketplace—features the wares of local artisans and farmers for shopping in good conscience!

Families can help colorful St. Louis artist Charlie Houska boldly paint a Metro bus. Then enjoy healthy and delicious treats in the shady Local Food Court. Kids can build and race a solar car, make art from recycled materials, and snap a photo with Oscar the Grouch and other costumed characters.

Our popular "Learn Green–Live Green" workshops return with 26 practical sessions covering topics like urban farming, solar energy at home, keeping backyard bees and chickens, and converting to electric cars. Workshops are held indoors at Cardinal Ritter High School.

"People come to this festival because they're interested in sustainable living and want to learn more," says EarthWays Center director Glenda Abney. "We're able to present this region's widest array of green expertise in one free, fun-filled day, thanks to our year-round partnerships with so many businesses and nonprofit groups working to protect plants and their environment."

The 9th annual Green Homes Festival is brought to you by the Missouri Botanical Garden's EarthWays Center and the Missouri Coalition for the Environment, and presented by Ameren UE.

Rain or shine, the Green Homes Festival fills the 3600 block of Grandel Square, between Grand and Spring in midtown St. Louis. We share this festive date with "Dancing in the Street," Grand Center's free fall performing arts street fest, which features dance stages, food, music, and fun from noon to 9 p.m.

Festival admission and parking are free. A $10 wristband will admit visitors to any combination of workshops ($5 for single workshop admission). For a complete festival schedule and other details, visit www.greenhomesSTL.org

Shop Whole Foods to Help EarthWays

Thursday, September 16,
11 a.m. to 7 p.m.

Plan a shopping trip to Whole Foods Market on September 16, when 5% of your purchases will be donated to EarthWays Center to support environmental education for youth and adults. EarthWays staff and volunteers will be in both local stores to share green-living resources and lead recycled-art activities for kids. EarthWays Center's Community Support Day takes place at both St. Louis Whole Foods Market locations: the Galleria store at 1601 S. Brentwood Blvd., and the Town and Country store at 1160 Town and Country Crossing Drive. www.wholefoodsmarket.com

Ladybeetles are beneficial natural predators.

Integrated Pest Management: An Alternative to Pesticides

by Mark Deering, Collections Manager and Curator of Butterflies

To say the world's population relies on agriculture for survival is a massive understatement: corn, wheat, rice, soybean, vegetable, and fruit crops feed billions of people daily, and the number of people relying on agriculture continues to grow. As long as people have planted these crops, insects have been eating them.

There are hundreds of moths, beetles, true bugs—and yes, butterflies—that are considered agricultural pests. Keeping these pests in check, without damaging the environment, the quality of the food, and the pollinators that are often required for the crops' success, becomes quite challenging.

Pesticides kill bugs, but many insects can quickly develop resistance to pesticides and render them useless. Other environmentally sound options, such as crop rotations or use of beneficial insects and natural predators as part of an integrated pest management (IPM) plan, provide good alternatives in many circumstances to standard calendar spraying. Using fewer pesticides may mean a little more cosmetic damage to some crops, and deciding on acceptable thresholds for this damage is critical to farming success.

Using fewer insecticides and allowing native, natural plants and flowers to grow at field edges increases habitat for natural predators and pollinators. Predators can move into the fields to feed on the pest insects, then return to the edges of the field to reproduce and rest. Pollination accomplished by native insects may become more and more important if European honey bees, a non-native introduction, continue to face the challenges currently impacting their population and success.

The benefits of good integrated pest management include lower costs of purchasing and applying pesticides, less environmental contamination, a crop that may be more desirable at market, and increased numbers of natural predators and pollinators in the fields. While IPM is not the answer in all circumstances, it does provide a solid alternative in many cases to pesticide usage.

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photo by Lindsay Moser

OCTOBER
OWLS AND
ORCHIDS

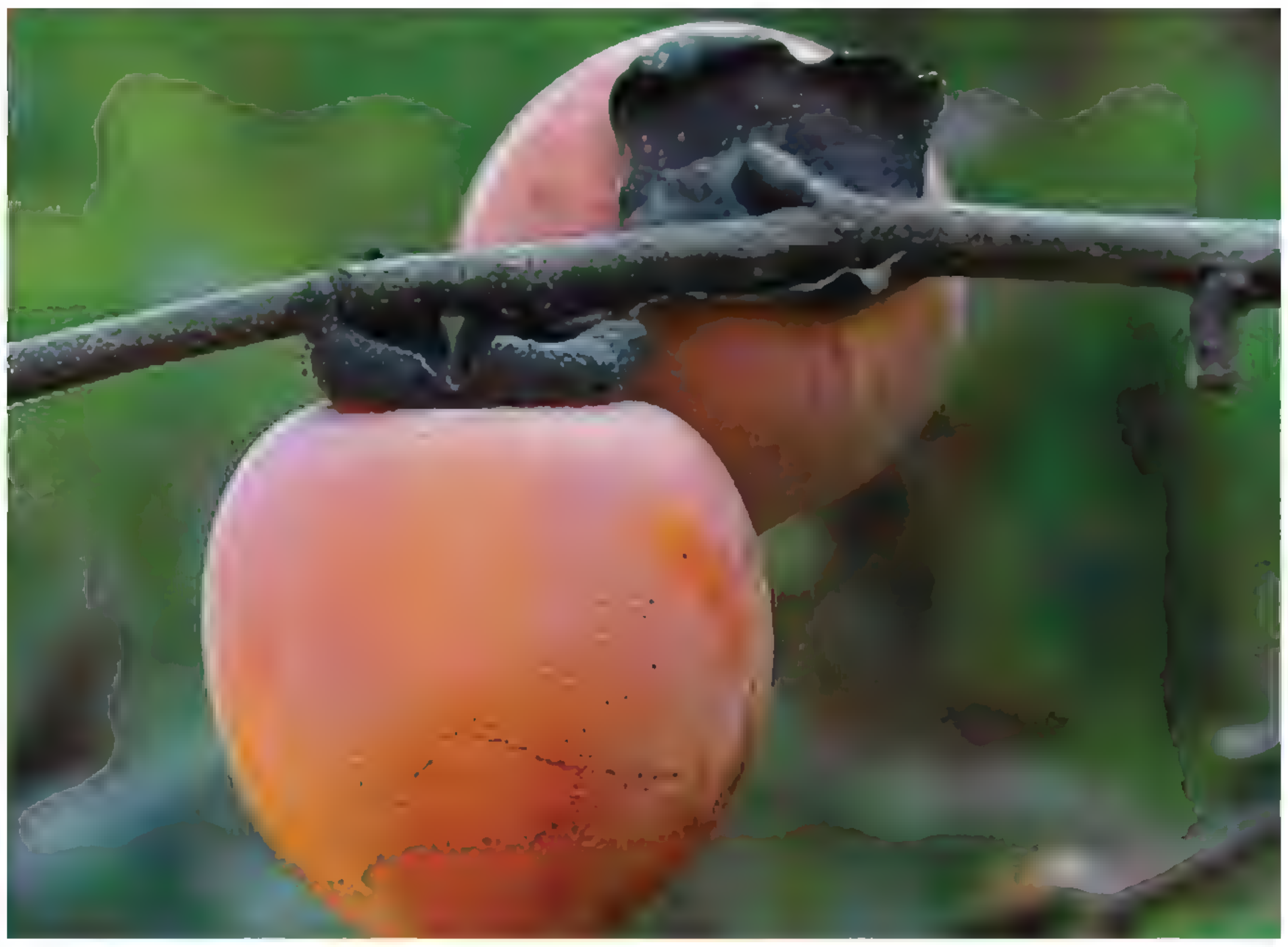
Owl butterfly

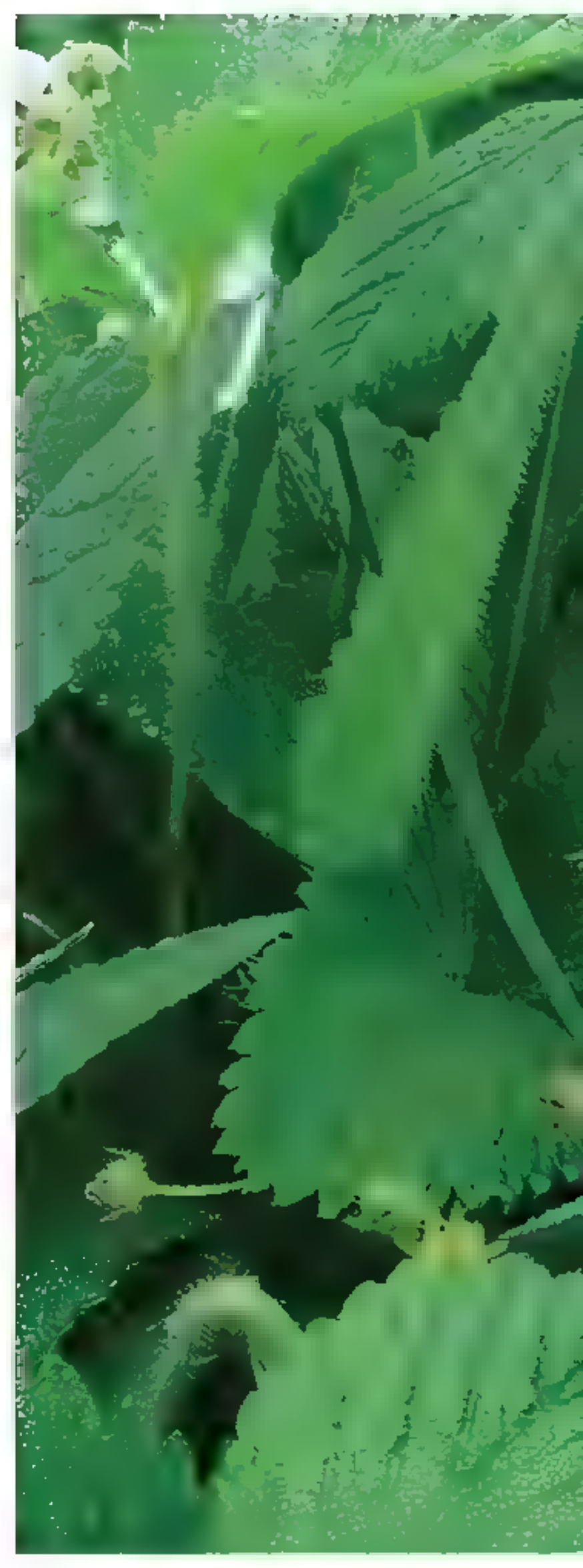
Numerous special events are planned throughout October. For information, visit www.butterflyhouse.org or call (636) 530-0076.

October Owls and Orchids add a splash of tropical color to fall at the Butterfly House. All month long, a display of vividly blooming orchids will dazzle visitors to the 8,000-square-foot Tropical Conservatory, and the Butterfly House is expanding its collection of owl butterflies from 150 to nearly 2,000.

Owl butterflies (*Caligo eurilochus, Caligo atreus,* and *Caligo memnon*) are most recognizable at roost, when the underside of their wings is prominently displayed. Their name comes from markings that resemble a bright yellow owl eye surrounded by rich, chocolate-colored feathers.

While other creatures settle in for the night, owl butterflies are most animated at dawn and dusk. See masses of them cluster on fruit-covered logs during the day, and watch them in flight during expanded evening hours from 4 to 7 p.m. every Tuesday night in October. Guided tours with Butterfly House staff will be offered at 6 p.m. Owls and Orchids is included with regular Butterfly House admission.





photos by Scott Woodbury

Wild Edible Plants

A Native Bounty for Your Table

by Cindy Gilberg

In our modern world, we have become disconnected from the natural world around us, especially when it comes to the source and seasonality of our food. Eating locally is even more relevant when the food is harvested from plants indigenous to our region. Each edible native plant yields its flavorful offering according to the seasons—fiddleheads and wild strawberries in spring, blackberries and gooseberries in summer, and persimmons in the fall. Create a culinary connection with the natural world and discover an abundance of gourmet cuisine for your table.

Instead of foraging for these plants, many are buying and growing the plants themselves. Edible landscaping has gained renewed popularity, and sales of edible plants have soared for the first time since the victory gardens of the World War II era. Buying nursery-propagated native plants or seed has the extra advantage of helping avoid misidentification of plants in the wild.

The rhythm of the seasons is marked by some familiar favorites. After a long winter, the soft pink flowers on the redbud tree (*Cercis canadensis*) are a welcome sign of spring. The clusters of flowers are edible and make an unusually attractive addition to fruit or vegetable dishes and in salads. Violets are another spring edible flower you may want to try. In April, ostrich ferns (*Matteuccia struthiopteris*) begin to unfurl their tightly wound fronds, known in the gourmet world as fiddleheads. When sautéed in butter, fiddleheads are a splendid rival to asparagus.

What would summer be without the abundance of berries? Wild blackberries (*Rubus* spp.) and black raspberries (*Rubus occidentalis*) yield amazingly sweet fruit for snacks, pies, and preserves. After spicy-scented flowers bloom in spring, the golden currant (*Ribes odoratum*) has a summer crop of edible berries. The gooseberry (*Ribes missouriense*), a three-foot-tall shrub that grows in woodlands, yields fruit that can be cooked in pies when green or eaten fresh when ripe. These berries are especially appealing to birds, so sharing is part of the harvest.

The fruits of fall are equally delicious. Pawpaw (*Asimina triloba*) is a large-leaved understory tree that bears delectable fruit in September. Harvesting this elusive fruit can be difficult as it is a favorite of raccoons. Its flavor is reminiscent of banana mango custard—such a tropical taste on a Missouri native tree! A plentiful yield of fruit is found on persimmons (*Diospyros virginiana*), ripening in September and October. Forager, beware—the unripe fruit is exceptionally astringent. A brisk shake of the tree or branches will loose a sweet snack of ripe fruit that is a rich apricot color. Persimmon pudding is among the highly desirable native plant recipes.

Nuts are also a sign of fall, and the hazelnut is among the finest. This large shrub is worthy of a place in home landscapes not only for its flavorful nuts but also for its spectacular, red-orange fall color.

For tea drinkers, the leaves of wild bergamot (*Monarda fistulosa*) lend a minty flavor to tea. So does hairy

*From left: In September, pawpaw (*Asimina triloba*) bears fruit with a flavor similar to banana mango custard. Persimmons (*Diospyros virginiana*) ripen in September and October. Wild strawberries are a favorite harbinger of spring.*

mountain mint (*Pycnanthemum pilosum*). Rose hips are an excellent source of vitamin C. Spice bush (*Lindera benzoin*), more of a small tree than a bush, has a spicy smell and flavor mildly reminiscent of allspice. Chop and use the leaves, bark, and even the spring flowers for brewing tea. New Jersey tea (*Ceonathus americanus*) earned its reputation during the Boston Tea Party protest against taxation of imported tea. The dried leaves make a respectable cup of tea, as do wild strawberry (*Fragaria virginica*) and the dried flower clusters of linden (*Tilia americana*).

Remember, be an informed forager. Learn to properly identify native edible plants as well as which parts are edible and how to prepare them. Shaw Nature Reserve offers classes on identification and on edible natives and mushrooms. In addition to numerous general field guides, a few focus on edible native plants. Adding some of these edible native plants to a home landscape is yet another way to connect with the rich heritage of our region.

Learn More...

Wild Edibles
Learn to identify some common seasonal wild edibles you can find in Missouri. This class will include safety tips for foraging plants, keys to identification, and a hike to let you practice identifying wild edibles in their environment. You will have the opportunity to sample a variety of raw and prepared wild foods.

$16 members, $20 nonmembers
Saturday, October 9; 1 to 4 p.m.
SNR – Adlyne Freund Center

Register today at www.mobot.org/classes

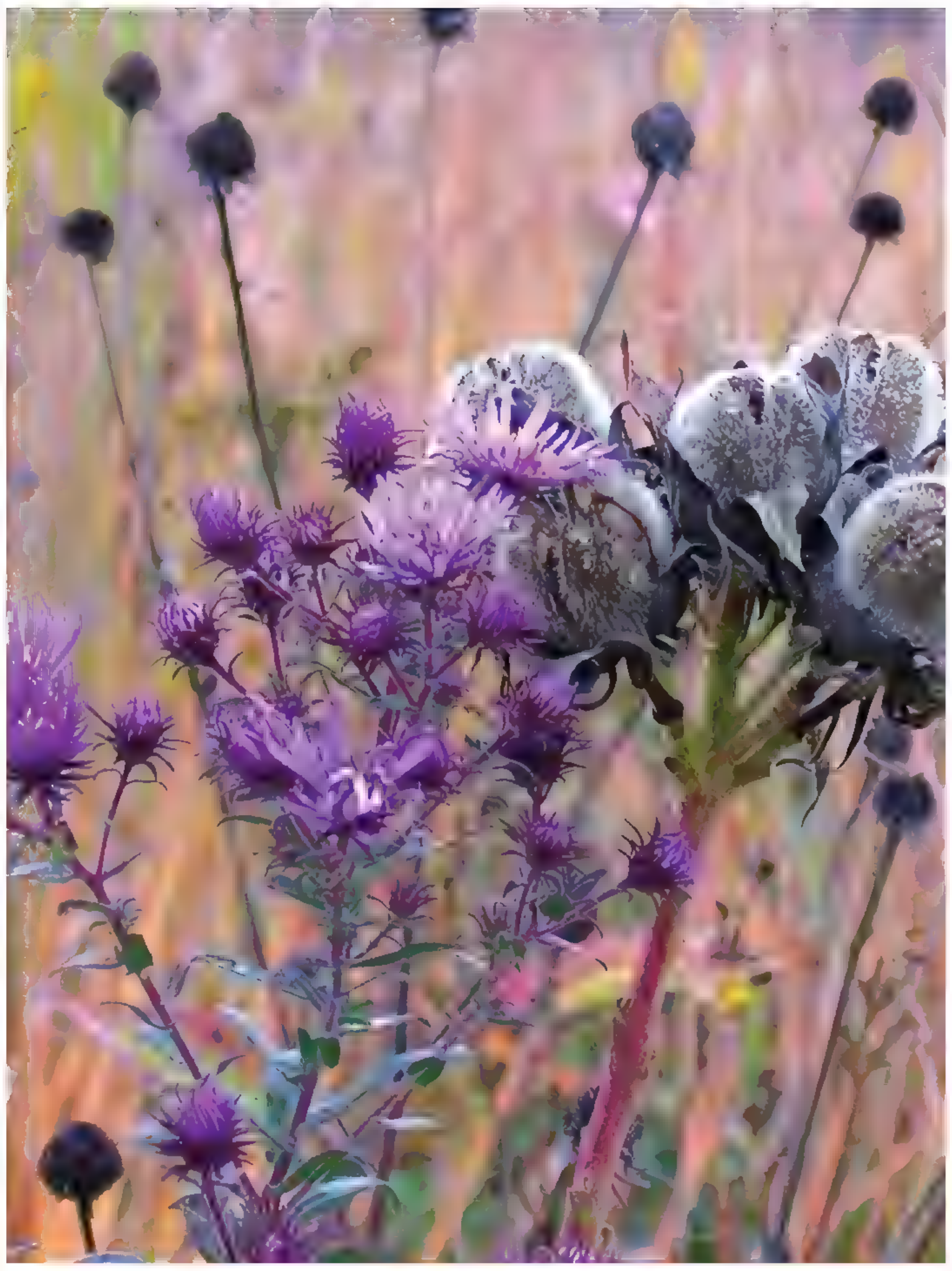


photo by Scott Woodbury

New England Aster and Rose Mallow

Fall Native Plant Sale

The following Missouri native plants are favorite wild edibles, and many will be available at the Open Garden and Fall Native Plant Sale Friday, Sept. 10 from 4 to 8 p.m. at Shaw Nature Reserve. Many are also available at local nurseries.

Serviceberry (*Amelanchier arborea*)
Parts Used: Fruit eaten fresh or baked

Purple Poppy Mallow (*Callirhoe involucrata*)
Parts Used: Root

Hazelnut (*Corylus americana*)
Parts Used: Nuts toasted

Wild plum (*Prunus americana*)
Parts Used: Fruit for jams and jellies

Black Chokeberry (*Aronia melanocarpa*)
Parts Used: Fruit for jams and jellies

Elderberry (*Sambucus canadensis*)
Parts Used: Flowers for elderberry cordial

Spiderwort (*Tradescantia virginiana, T. bracteata, T. ernestiana*)
Parts Used: Flowers and tender leaves in salads

Violets (*Viola* spp.)
Parts Used: Flowers and tender leaves in salads

Seen at the Garden

Wing Ding | *June 25, 2010*

The Sophia M. Sachs Butterfly House welcomed 170 guests to its signature gala, Wing Ding, on Friday, June 25. This year's theme was "Pura Vida," Spanish for "full of life," to highlight the Butterfly House's relationship with El Bosque Nuevo, a butterfly preserve in Costa Rica. Guests enjoyed festive decorations, lively music, and tropics-inspired food and beverages. Proceeds from the event support education programs, special exhibits, and conservation initiatives at the Butterfly House.

photos by Josh Monken

Ira and Judy Gall, Mimi and Marvin Renard

Rick and Deby Halpern

Mary L. Parker and Kevin Roberts

Jeff and Susie Stuerman (Gala co-chairs), Arnold and Hazel Donald, Drs. Peter and Pat Raven, and Monica and Joe Norton

Jim and Karen Shaughnessy, Tom and Christine Blazevic, Jill and Steve Metherd

Monica Norton, Teesha Hernandez, Larry Deskins, Victor and Deborah Lazaretti, Kurt Merkel, Catherine Greany, John Bush, and Pam Jackson

Dr. Raven Day ¦ *August 6, 2010*

More than 500 members of the community turned out to publicly recognize Dr. Peter Raven for his nearly four decades of leadership as president of the Missouri Botanical Garden. In addition to proclamations from St. Louis Mayor Francis Slay and St. Louis County Executive Charlie Dooley, Dr. Raven also received a rarely given key to the city from Mayor Slay. Well-wishers had an opportunity to thank Dr. Raven personally and sign a memory book, and also purchase a *Metasequoia glyptostroboides* ‘Raven’ Shaw’s Legacy® Dawn Redwood.

photos by Sonya Buerck and Andrea Nickrent

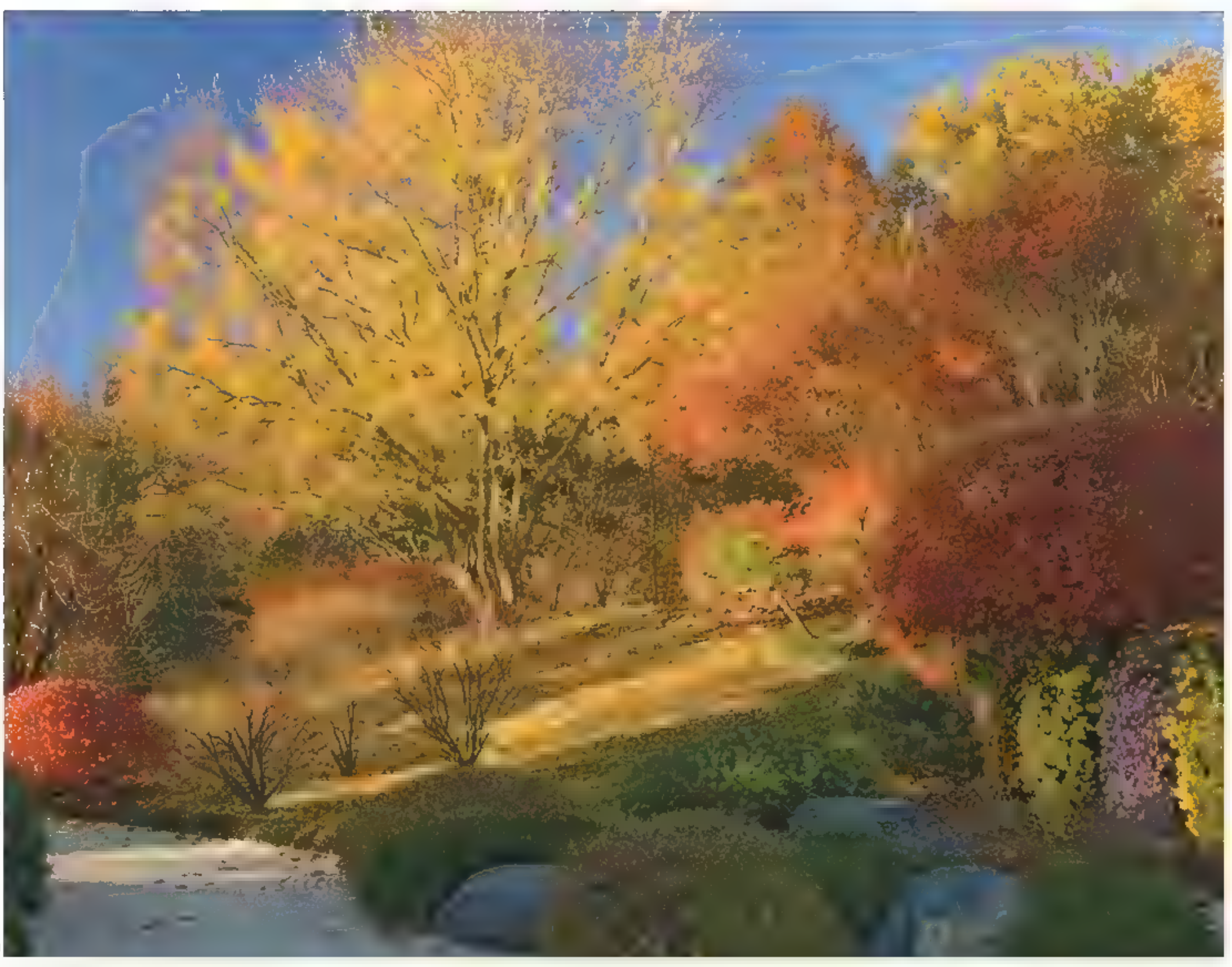


photo by Ian Adams

Tributes

April through June 2010

A tribute gift to the Garden is a wonderful way to honor family and friends. Tributes of $25 or more are listed in the *Bulletin.* If you have questions regarding giving opportunities at the Garden, please call (314) 577-0805. You can also make a tribute gift online at our website, www.mobot.org.

In Honor of

Danny and Jackie Bainter
Ken and Emily Wilson
Bill and Nancy Coates

Mr. and Mrs. Stephen F. Brauer
Mr. Curt Engler

Mrs. Claire Chosid
Mr. and Mrs. Michael C. Vander Velde

Mr. Benjamin N. Chu
Ms. Susan Albers

Justin and Brittany Courtney
Scott Frawley

Mr. Albert Daube
Lee and Rita Warren

Mr. Jason A. Delaney
Mrs. Irene R. Morrill

Ms. Bo Demerath
Mrs. Carol Shepley

Ms. Skippy Dennis
Mrs. Marsha Dennis

An honest person
Mr. Lawrence Dennis

Mr. and Mrs. Charles M. Gapsch, Sr.
Mrs. Madeline Bendorf

Mrs. Vivian Gellman
Mrs. June R. Bierman

Mrs. Janice Gitt
Mr. Stanley Gitt

Mrs. Sally Harrison
Mrs. Suzy Seldin

Mr. and Mrs. David M. Homeier
Mr. and Mrs. Patrick J. Welch

Jim and Norma Horn
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Mr. and Mrs. Raymond W. Peters II

Mr. John A. Hrinsin
Mrs. Margaret St. Claire

Ms. June Hutson
Missouri Botanical Garden Docents

Mr. Jim Jackson
Missouri Botanical Garden Docents

Nick and Mary Jacobs
Ms. Dion M. Scherr

Andris Jursevskis and Nancy von Brecht
Ann T. Eggebrecht

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Missouri Botanical Garden Docents

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Mr. and Mrs. George H. Wirth
Mrs. Bernice T. Huber
Mr. and Mrs. Loren C. Kolditz

Mrs. Ann Duvall Wyatt
Mrs. Barbara J. Duvall

In Memory of

Mr. Harold H. Ahner
Gloria D. Merlotti and family
Jen and Tim Phelan

Mr. Dominic Alessi
Mrs. Marilyn J. Boettcher

Mrs. Dona Argentieri
Mrs. Elizabeth Hanna

Mrs. Grace Evelyn Bale
Mr. and Mrs. Richard Griffey

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Floyd and Elsie Bates
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Mr. and Mrs. William H. Jones, Sr.

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Ms. Linda Wolf

Mrs. Shirley Labeau
Ms. Lynn K. Silence

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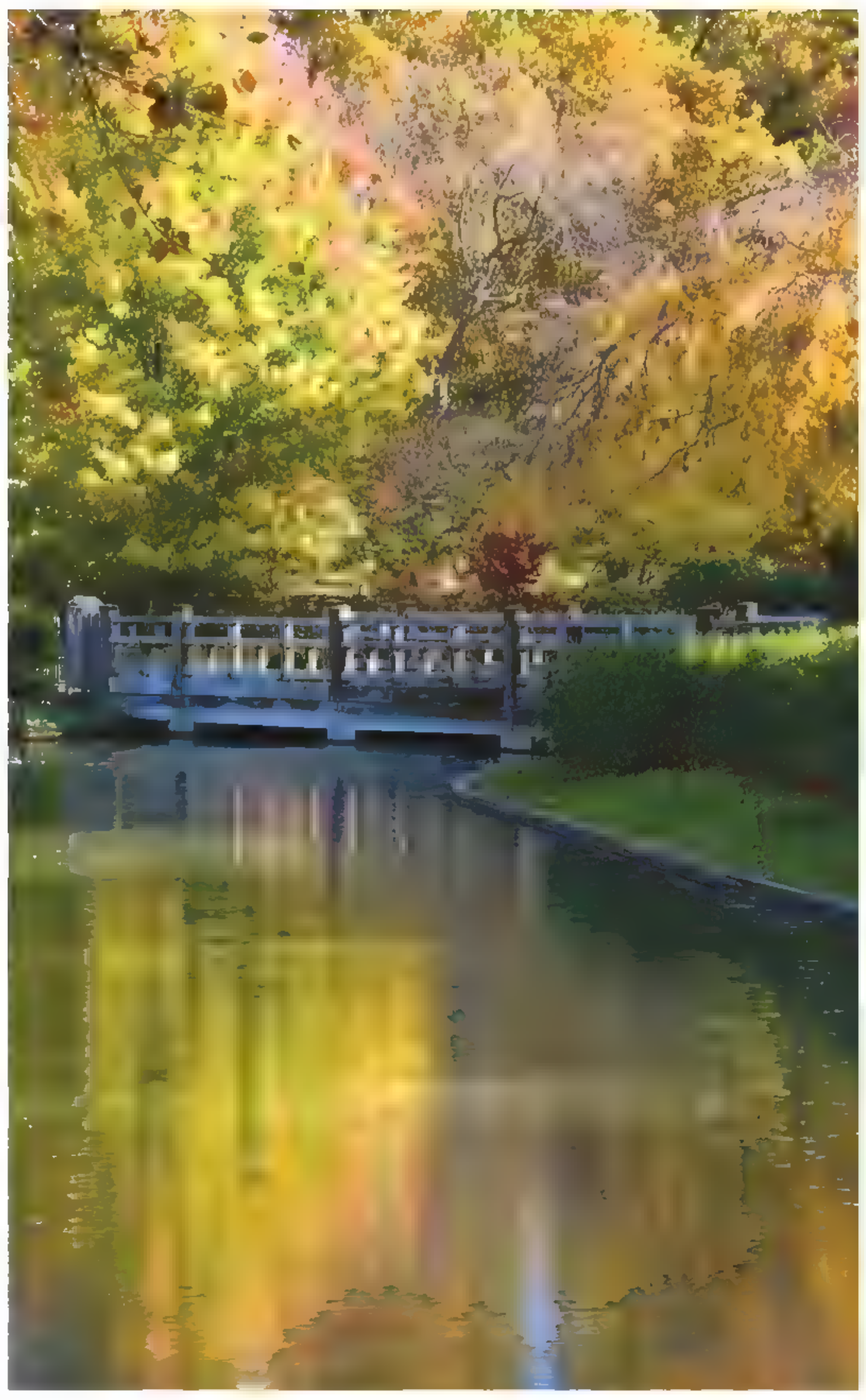
photo by Mary Lou Olson

Create a legacy

Leaving a bequest to the Garden creates a legacy that will benefit others for generations to come. If you have already included the Garden in your estate plans, we hope that you will share this information with us. We would like to express our gratitude and welcome you into the Heritage Society. Of course, your wishes for anonymity are respected. Please call (314) 577-9495 for further information, or visit our website at www.mobot.org. Click on Donate, then Planned Giving.

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Mr. and Mrs. Doug Britt

Adele Spitzer Roman
Mr. and Mrs. Robert D. Millstone

Mrs. Rosalie A. Rosen
Ms. Jackie Juras
Ms. Jacquelin J. Mitchell
Ann Rolfing, Eldon Rolfing, Ruth Rolfing and Shirley and Myron Coleman
Mrs. Ruth S. Sherwin

Mrs. Edna Mary Roussan
Mrs. Shirley R. Lanham

Mr. Robert L. Sanders
Mrs. Kitty Sanders

Father of Matt Sarno
Dr. and Mrs. Edward Weiss

William Scharfinski
Paula Hegger Martin

Mr. Harvey R. Scheer
Mr. and Mrs. Mark P. Beck
Mr. and Mrs. Joachim Creutzburg
Ms. Jackie Juras
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Mr. and Mrs. Harold Meyer
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Ms. Betty Nelson and Mr. Elgar Scheer
Mrs. Leora M. Scheer
Mr. and Mrs. Donald J. Voss

Mr. John G. Schreiner, Jr.
Mr. and Mrs. Daniel L. Gravens

Tributes *(continued)*

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Ellen and Henry Dubinsky
Mr. and Mrs. James R. Steiner

Mr. Donald J. Sebacher
Mrs. Laura Langhorst
Ms. Debra Lewis
Ms. Linda M. Russell
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Mrs. Tina Yeargain

Mr. Warren McKinney Shapleigh
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Mr. and Mrs. Richard J. Buschart

Mrs. Joyce M. Smith
Mr. and Mrs. Harry Fisher

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Margaret S. Patricelli

Mrs. Engracia Tabernilla Morales
Edmond and Brenda Alizadeh
Ms. Kathi Alizadeh
The Steve Bierschenk Family
Mr. and Mrs. James A. Boaz
Raelynn & Kelly Chase
Mr. and Mrs. Thomas J. Cini
Mr. and Mrs. James M. Fiala
Ms. Susan S. Fiala
Isabel and Ignacio Garcia
Mr. and Mrs. Roger Hornsby
Mrs. Monica Jazbani
Tom and Thomasine Joyce
Tom and Aurora Lennartz
Mr. and Mrs. Peter Lombardo
Ms. Ana Maria Luengo-Romero
Mr. and Mrs. Leroy E. Mitchem
Mrs. Carolina Olivari
Mr. and Mrs. Samuel W. Panos
Mr. and Mrs. William Spuhl
Ms. Cindy Wiggins

Mrs. Dorothy Jane Tate
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Mrs. Millie B. Wolff
Mr. and Mrs. Fred Berger

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Ms. Mary Sorrells

Todd Samuel Zick
Barbara and Erich Stroh
Family and Friends

Members' Entry Court

Bricks dedicated at the Garden, April through June 2010.

Engraved clay bricks and signature bronze bricks are a wonderful way to commemorate any special occasion, as well as final memorials. For additional information regarding the Garden's brick program, please contact the Institutional Advancement Office at (314) 577-0291 or visit www.mobot.org.

Signature Bronze Bricks

Joe and Bette Botz
Mrs. Marsia Geldert-Murphey
Ms. Ruth Huber

Bonnie Doebber
Ms. Luella A. Black

Jo Ann Platt
Mr. H. James Hoeferlin
Mr. William T. Sapp

Marcia Ann Schonhoff
Mrs. Marcia A. Schonhoff

Engraved Clay Bricks

Ann Theisen Eisel
Anton Fohrell Eisel
Mr. Anton F. Eisel

Keith and Liz Ell
Mr. Keith Ell

Rita Morton
Ms. Ann M. Morton

Timothy "Mac" O'Connell
Mr. and Mrs. James M. McNulty

Jim Schwartze
Ms. Kaitlin E. Moran

Vernon and Lillian Teig
Ms. Carol D. Teig

photos by Sonya Buerck

Sophia M. Sachs Butterfly House Tributes & Pavers

To learn more about these opportunities, call (314) 577-0291 or visit www.butterflyhouse.org.

Tributes and Pavers dedicated at the Sophia M. Sachs Butterfly House, April through June 2010.

Tributes

In Honor of

Bob and Jane Shamel
Ms. Kay Ottersbach

In Memory of

Kim Lee
Tu N. Lee and Kham Sue Ma

Mrs. Ann P. Lieberman
Mr. and Mrs. Donald R. Conant
Mr. and Mrs. Kenneth R. Ray
Mr. Joe Thomas

Ms. Esther Pahl
Lynn and Suzy Felsenthal

Pavers

Andrew and Matthew Akin
Sophia M. Sachs Butterfly House Staff and Volunteers

Matthew Akin
Mr. and Mrs. Vincent J. Capatosta

Bev Bowen
Bill Bowen
Billy Bowen
Dr. Tracey Bowen

Laura Cedeck
Mr. and Mrs. Vincent Consolino, Jr.

Nate and Bernadine Fredlich
Mr. Joe Fredlich and Ms. Trista McSwain

The Longleys
Mrs. Cindy Drinen

Eric J. Pelker
Mr. and Mrs. Robert R. Pelker

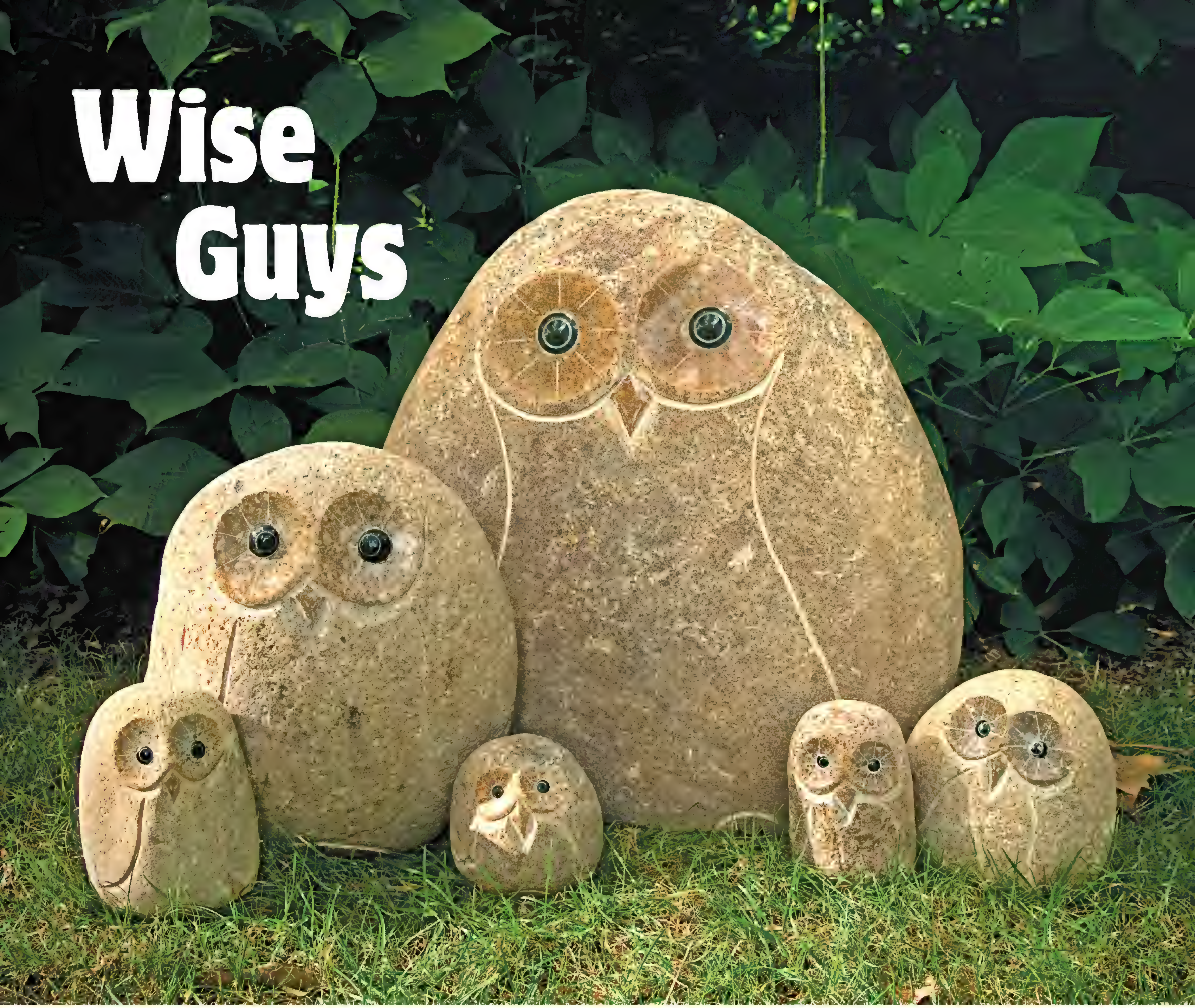
Catherine and Glen Provins
Mr. and Mrs. Harold Feltmann

gift of the GARDEN

Receive a 20% discount on gift memberships November 3–7 and December 1–5.

A Garden membership makes a great gift, and now is the time to give it. The Garden will offer a 20 percent discount on Garden, Garden Plus, and Family-level memberships from November 3–7 and December 1–5. Memberships must be purchased on-site at the Membership Services Desk. Find out more at www.mobot.org, or call (314) 577-5118.
Discounts apply to on-site sales only.

Wise Guys



A hand-carved natural stone owl will add charm to any garden. Each one is unique, and they come in a wide range of sizes and prices. Adopt one or take an entire parliament home with you to roost. Check out the selection at the Garden Gate Shop, where members always enjoy a discount.

GARDEN
GATE SHOP.ORG

All proceeds benefit the Missouri Botanical Garden.

September Events

Visit www.mobot.org for the latest information.

JAPANESE
FESTIVAL

Saturday and Sunday, September 4–5, 10 a.m. to 8 p.m. ☺
Monday, September 6 (Labor Day), 10 a.m. to 5 p.m.
The Garden presents its annual celebration of Japanese arts, culture, and cuisine. Come experience the thunder of taiko drumming, the high-impact thrill of sumo wrestling, the grace of traditional tea ceremonies, martial arts, candlelight walks in the Japanese Garden, and more.

Admission: $15 adults (13-64), $10 seniors (65+), $5 children (3-12), $5 members. Buy tickets in advance online at www.mobot.org. No trams.

Sponsorship support for the 2010 Japanese Festival is provided by Central States Coca-Cola Bottling Company; Novus International, Inc.; and Bodine Aluminum, Inc.

✿ Grandparents' Day
Sunday, September 12, 1 to 3 p.m., Cohen Amphitheater
Enjoy fun activities, a botanical craft, and an afternoon at the Garden with your grandchild. Free for Garden members. Advance reservations required; (314) 577-9570 or www.mobot.org/membership. For more information, call (314) 577-5154.

Flowering Frost
September 17 through November 21, Monsanto Hall, Ridgway Visitor Center
An exhibit of photographic works by David Boesch, "Flowering Frost" depicts the visual phenomenon of "frost flowers" or "ribbon ice," the frosty, spiraling formations that occur when freezing air, warm soil and plant life combine. Part of the American Arts Experience!

Coffee with the Presidents
Saturday, September 25, 9 to 10:30 a.m., Spoehrer Plaza
Come meet and mingle with Dr. Peter Wyse Jackson, incoming Missouri Botanical Garden president, and Dr. Peter H. Raven, Garden president emeritus. Enjoy light refreshments and remarks by Dr. Wyse Jackson, Dr. Raven, and Arnold Donald, chairman of the Board of Trustees. (Remarks at 9:30 and 10:15 a.m.)

Prairie Day ☺
Saturday, September 25, 10 a.m. to 4 p.m. Shaw Nature Reserve
Experience what life was like on the prairie at our fun-filled biannual event. Take a guided hike, visit the teepee, play pioneer games, try your hand at flint-knapping, and more. Enjoy bison burgers and homemade baked goods. A variety of prairie wildflowers and grasses will also be available for purchase. Sponsored by the Shaw Nature Reserve and Missouri Department of Conservation. $3 for members; $5 nonmembers; $1 for children 12 and under. Information: www.shawnature.org or (636) 451-3512.

DinoQuest: ☺
A Tropical Trek Through Time
Through October 3
Now's your last opportunity to journey back to the golden age of the dinosaurs! These prehistoric creatures will be leaving the Climatron® conservatory soon—don't let this chance go extinct. 9 a.m. to 5 p.m. Climatron dome, Shoenberg Temperate House, and Brookings Interpretive Center. Garden admission plus $5 adults, $3 children (3–12), $3 Garden members, $2 members' children. Learn more at www.mobot.org/dinoquest. *The Garden thanks sponsors Cardinals Care; Charles and June Gallagher; Insituform Technologies, Inc.; Macy's; Cheryl and Dave Morley; and an anonymous contributor.*

Jurassic Dark ☺
Thursday evenings through September 30, 6 to 10 p.m. (last entry 9:30 p.m.), Climatron and grounds
Experience DinoQuest after hours with dramatic lighting, sound, and fog. Enjoy balloon art, admission to the Doris I. Schnuck Children's Garden until 8 p.m., and more. Admission is $9 adults, $7 children (3–12), $5 Garden members, $3 members' children.

☺ = fun for families
✿ = members' event

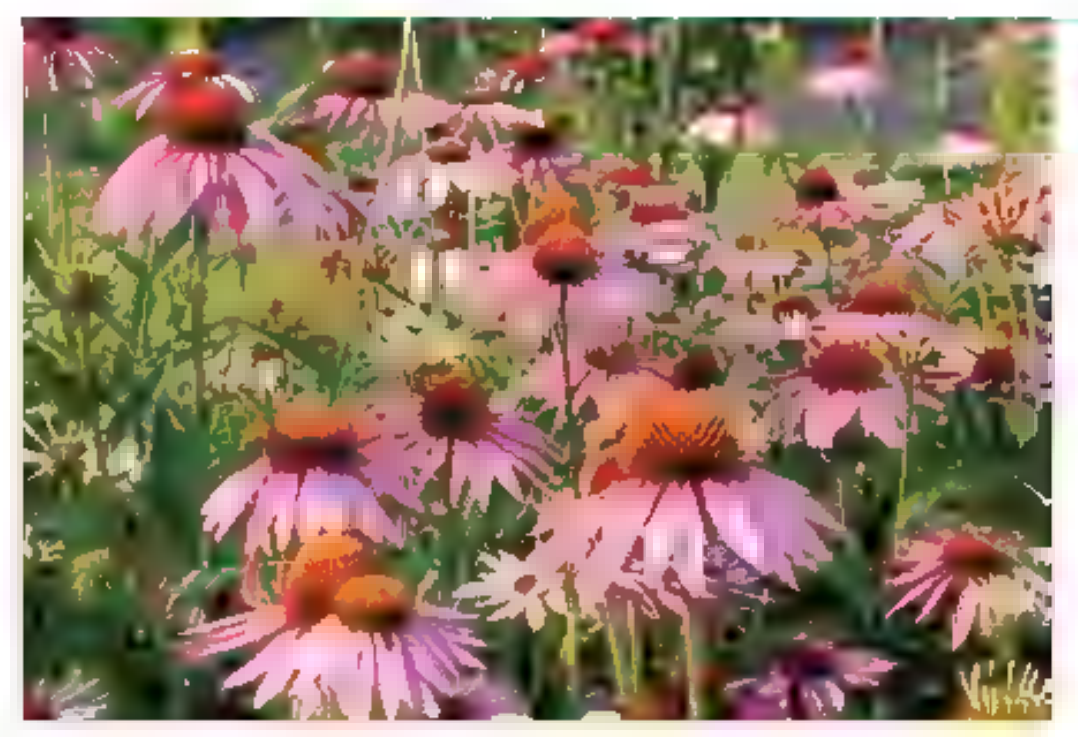
September 2010

average temperature: low 60.3°, high 80.1°
average precipitation: 2.96 in.

What's in bloom?

download the podcast at www.gardeninghelp.org

windflower


coneflower

hydrangea

asters

toad lily

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JURASSIC DARK THURSDAY EVENINGS, 6 TO 10 P.M. ENDS SEPTEMBER 30!			01 Japanese calligraphy exhibit, through Sept. 12. RVC	02	03	04 JAPANESE FESTIVAL 2010
05 JAPANESE FESTIVAL 2010	06 LABOR DAY JAPANESE FESTIVAL 2010	07	08	09 ROSH HASHANAH	10	11 Greater St. Louis Daylily Society sale. RVC Maxine Stone, *Missouri's Wild Mushrooms* book signing, noon to 2 p.m. GGS
12 Members' Event: Grandparents Day. CA Green Parenting: Making A Sustainable Impact on Your Child's School. 2 p.m. EWC. $15. ☎	13 Composting Expanded: Vermicomposting. 6:30 p.m. $48. EWC. ☎	14	15	16 EarthWays Center "5% Day" at Whole Foods Markets	17 "Flowering Frost" exhibit opens. RVC	18 YOM KIPPUR Metropolitan St. Louis African Violet Council sale. RVC Greater St. Louis Dahlia Society show. RVC "Green Homes Festival Sneak Peek" Public Tour Days. EWC.
19 Greater St. Louis Dahlia Society show. RVC "Green Homes Festival Sneak Peek" Public Tour Days. EWC.	20	21	22	23	24	25 Coffee with the Presidents. 9 a.m. SP Green Homes Festival. 10 a.m. to 6 p.m. EWC Gateway West Gesneriad Society show and sale. RVC Greater St. Louis Daffodil Society sale. RVC Prairie Day. 10 a.m. to 4 p.m. SNR
26 Gateway West Gesneriad Society show and sale. RVC Greater St. Louis Daffodil Society sale. RVC	27	28	29	30		**Go Green for the Holidays!** *The Garden calendar and holiday cards are now printed on 100% post-consumer recycled paper. Purchase yours today in the Garden Gate Shop.*

www.plasticpot
recycling.org

Missouri Botanical Garden
2011 calendar

photos by Sonya Buerck, Beth Haines, and Christy Siebert

October Events

Visit www.mobot.org for the latest information.

photo by Erin Whitson

Best of Missouri Market®

Saturday and Sunday, October 2–3, 9 a.m. to 5 p.m. ☺
✿ *Members-only early bird shopping: Saturday, 7 to 9 a.m. and Sunday, 8 to 9 a.m.*

The Garden's nineteenth annual Best of Missouri Market® features over 140 Missouri food producers and crafters offering fresh produce, baked goods, fresh and dried flowers, herbs, handcrafted items, baskets, wooden toys, jewelry, and more. Get a head start on holiday shopping, plus enjoy live music and a Kids Corner with cow milking, pumpkin decorating, and llamas. Outdoors under tents, rain or shine.

Admission: $12 adults (13–64), $10 seniors (65+), $5 children (3–12), $5 members. Buy tickets in advance at www.mobot.org. No trams.

Presented by Schnuck Markets, Inc.
Kids' Corner sponsored by St. John's Mercy Children's Hospital.
Additional sponsorship support by AgriMissouri, Central States Coca-Cola Bottling Company, Commerce Bank, Creve Coeur Camera, Drury Hotels Company, Edward Jones, Great Harvest Bread Company, The Home Depot, Ingersoll Rand—Hussmann/Thermo King/Trane, KMOX, Peabody Energy, Ronnoco Coffee Company, Traube Tent Company, Waterway Gas & Wash, and Wehrenberg Theatres.

Members' Event: ✿ Prepping for Spring Bulbs

Tuesday, October 5, 11 a.m., Shoenberg Theater
Let Garden bulb expert Jason Delaney help you plan your own spectacular spring bulb garden for next year. Free for Garden members and their guests.

Fall Family Sleepover ☺

Saturday, Oct. 9 at 5:30 p.m. through Sunday, Oct. 10 at 8:30 a.m.
Nature-loving families can explore the Garden at night like never before! Take a night hike, create a craft, play in the Doris I. Schnuck Children's Garden, tell stories, and pot a plant to take home. Sleep under the stars amid the Garden's lush landscapes. Includes dinner, a late-night snack, and light continental breakfast. No tents, please. For families with children ages 6 to 12; one adult required for every two children. $50 per person; $40 Garden members. Advance reservations required; www.mobot.org/classes or (314) 577-5140.

Members' Event: ✿ Owl Butterflies

Wednesday, October 13, 11 a.m., Sophia M. Sachs Butterfly House
Join Butterfly House staff on a tour to observe the owl butterflies and learn more about their crepuscular behavior (active at twilight). Limited availability. Reservations required; call (636) 530-0076 ext. 10.

Young Friends' Fest-of-Ale

Friday, October 15, 6 to 10 p.m., Sophia M. Sachs Butterfly House
Sample beer from some of the area's best local breweries. Enjoy appetizers and live music under the stars with the Young Friends of the Missouri Botanical Garden. $15 for Garden members, $30 for nonmembers. Advance reservations required; (314) 577-9570 or www.mobot.org/membership. For more information, call (314) 577-9532.

Children's Garden Closes for the Season ☺

October 30 through 31, 10 a.m. to 4 p.m.:
Help put the Doris I. Schnuck Children's Garden to bed for the winter with activities from 10 a.m. to 4 p.m. The Children's Garden is open April 1 through October 31 from 9 a.m. to 5 p.m. daily. $5 per child; adults included with general Garden admission.

Ghouls in the Garden ☺

Sunday, October 24, 1 p.m. to 4 p.m., Garden Grounds
Witches and pirates and vampires—oh my! Visit themed trick-or-treat stations throughout the Garden. Free for Garden members, $5 for nonmember children under 12. Advance reservations required; (314) 577-9570 or www.mobot.org/membership.

* *All Members' Events are free for members unless otherwise noted. On these days, members also enjoy discounts of 10 percent in Sassafras and the Terrace Café and 20 percent in the Garden Gate Shop, Little Shop around the Corner, and the Madame Butterfly Gift Shop at the Sophia M. Sachs Butterfly House.*

☺ = fun for families
✿ = members' event

October
2010

average temperature: low 48.2°, high 68.3°
average precipitation: 2.76 in.

What's in bloom?

download the podcast at www.gardeninghelp.org

dahlia

goldenrod

mums

sunflowers

gourds

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
DINOQUEST A TROPICAL TREK THROUGH TIME		**THE TROPICAL TREK ENDS OCTOBER 3!**	**Open through October only:** • Children's Garden • Tram operations • Terrace Café at Kemper Center for Home Gardening		01 🟩 "Flowering Frost" exhibit. through Nov. 21. RVC	02
03	04	05 🟩 Members' Event: Prepping for Spring Bulbs. 11 a.m. ST	06	07	08	09 🟩 Fall Family Sleepover 🟩 Kirkwood artist Lisa Lohman jewelry trunk show. GGS 🟩 Fair Trade trunk shows. GGS
	Climatron®, Brookings Interpretive Center, and Shoenberg Temperate House temporarily closed					
10 EID-AL-FITR 🟩 Kirkwood artist Lisa Lohman jewelry trunk show. GGS 🟩 Fair Trade trunk shows. GGS 🟩 World Hoop Day	11 COLUMBUS DAY	12	13 🟩 AARP Celebration of Life. 8 a.m. to 2 p.m. RVC 🟩 Members' Event: Owl Butterflies. 11 a.m. to noon. BH	14	15 🟩 Fest-of-Ale. 6 to 10 p.m. BH $ ☎	16 🟩 Great Green Adventures: Signs of Fall. 10:30 a.m. and 1:30 p.m. CHD. $3 🟩 Public Tour Day. EWC $
Climatron®, Brookings Interpretive Center, and Shoenberg Temperate House temporarily closed						
17 🟩 Public Tour Day. EWC $	18	19	20	21	22	23 🟩 Mid America Regional Lily Society sale. RVC 🟩 Fair Trade trunk shows. GGS
24 🟩 Ghouls in the Garden. 1 to 4 p.m. ☎ $ 🟩 Mid America Regional Lily Society sale. RVC 31 🟩 Children's Garden closing for the season 🟩 Fair Trade trunk shows. GGS	25	26	27	28	29	30 🟩 Children's Garden closing for the season 🟩 Metropolitan St. Louis African Violet Council sale. RVC 🟩 Fair Trade trunk shows. GGS

photos by Lauren Kirkwood, Mary Lou Olson, Charles Schmidt, and Leslie Wallace

November Events

Visit www.mobot.org for the latest information.

photo by Brian Mueller

Gardenland Express

November 24, 2010 through January 2, 2011 ☺
The Garden's annual holiday flower and train show returns to the Orthwein Floral Display Hall. Watch as G-scale model trains travel through a mountainous, miniature landscape of living plants, small towns, and rural dwellings along the Appalachian Trail. Twinkling holiday trees, oversized snowflakes, and over 600 colorful poinsettias and flowers surround the festively detailed scene. 9 a.m. to 5 p.m. daily; closes early at 4 p.m. on Christmas Eve and New Year's Eve; closed Christmas Day.

Gardenland Express is presented by Wells Fargo Advisors.
Additional sponsorship support by Central States Coca-Cola Bottling Company, Hobby Station, and Marian L. Herr.

Admission: $5 ages 3 and over, in addition to Garden admission. Members are admitted free.
Also watch for expanded holiday offerings, including Thursday Night Gardenland Express hours and three weekend afternoons of Carols in the Garden.

✿ SAVE THE DATE: Members' Only Preview

Wednesday, December 1, 5 to 8 p.m.
This evening preview of the holiday flower and train show includes music, cash bar, and holiday shopping in the Garden Gate Shop.

Members' Event: Holiday Decorating with Scott Hepper ✿

Thursday, November 11, 11 a.m., Shoenberg Theater
Join award-winning floral designer Scott Hepper to learn the latest ideas for festive holiday décor. Free for Garden members and their guests. For more information, call (314) 577-5154.

Holiday Wreath Auction

November 20, 2010 through January 2, 2011, Monsanto Hall
Bid on unique creations by some of the area's finest floral designers. Proceeds benefit the Garden.

Victorian Christmas at Tower Grove House ☺

November 23, 2010 through January 2, 2011
See the Victorian country home of Garden founder Henry Shaw decked for the holidays with wreaths, garlands, floral centerpieces, greenery, and a holiday tree. Enjoy storytelling on Saturdays at 11 a.m. and don't miss the special Seek-and-Find activity for children! Open Tuesday through Saturday, 10 a.m. to 4 p.m.; Sunday, 1 to 4 p.m. Closed Mondays.

Chanukah: Festival of Lights

Sunday, November 28, noon to 4 p.m.
A traditional Jewish holiday celebration that includes festive Israeli music and dance, a menorah-lighting ceremony, and Chanukah merchandise provided by local vendors and the Garden Gate Shop.

SAVE THE DATE:
The Story Tram Returns!

Saturdays and Sundays, December 4 through 19, 1:30, 2:30, and 3:30 p.m.
Join Mrs. Claus as she reads *'Twas the Night Before Christmas* told from Henry Shaw's perspective. The tram ride also includes a cookie and a small gift. $10 members, $15 nonmembers. Members may purchase tickets online at www.mobot.org starting November 1. Space is limited!

SAVE THE DATE:
Breakfast with Santa ✿☺

December 4 and 5, 8 to 10 a.m., Ridgway Visitor Center
$20 per person; free for children ages 2 and under. Seating is limited. Advance reservations required; www.mobot.org/membership. For more information, call (314) 577-5154.

gift of the GARDEN

Just in time for the holidays, purchase Garden, Garden Plus, and Family level gift memberships at a 20% discount during the Garden Gate Shop holiday sale, November 3–7 and December 1–5. ***Discounts apply to on-site sales only.***

☺ = fun for families
✿ = members' event

November
2010

average temperature: low 36.7°, high 53.8°
average precipitation: 3.71 in.

What's in bloom?

download the podcast at www.gardeninghelp.org

burning bush

fall color

Japanese anemone

pansies

Russian sage

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	01	02	03 🟩 Members' 20% off sale. GGS	04 🟩 Members' 20% off sale. GGS	05 🟩 Members' 20% off sale. GGS	06 🟩 Stephanie Prade, *Herbal Cookery from the Kitchens and Gardens of the St. Louis Herb Society* book signing. 11 a.m. to 2 p.m. GGS 🟩 Members' 20% off sale. GGS
07 🟩 Stephanie Prade, *Herbal Cookery from the Kitchens and Gardens of the St. Louis Herb Society* book signing. 11 a.m. to 2 p.m. GGS 🟩 Members' 20% off sale. GGS	08	09	10	11 VETERANS' DAY 🟩 Members' Event: Holiday Decorating with Scott Hepper, 11a.m. ST	12	13 🟩 Green Art and Craft Show. RVC
14 🟩 Green Art and Craft Show. RVC	15	16	17	18	19	20 🟩 Great Green Adventures: Mum's the Word. CHD $3 🟩 Holiday wreath auction. Through Jan. 2. RVC 🟩 Public Tour Day. EWC $
21 🟩 Public Tour Day. EWC $	22	23	24 🟩 Gardenland Express, holiday flower and train show through Jan. 2. $ RVC	25 THANKSGIVING	26 🟩 Whittle Shortline Railroad train trunk show. GGS	27 🟩 Whittle Shortline Railroad train trunk show. GGS
28 🟩 Whittle Shortline Railroad train trunk show. GGS 🟩 Chanukah: Festival of Lights. Noon to 4 p.m. RVC	29	30				

KEY *(All events take place at the Garden unless otherwise noted.)*

BH	Butterfly House	JE	Jordan Education Wing in the Visitor Center	SNR	Shaw Nature Reserve
CA	Cohen Amphitheater	LS	Little Shop around the Corner	SP	Spink Pavilion
CHD	Children's Garden	MC	Monsanto Center	ST	Shoenberg Theater in Ridgway Visitor Center
CL	Climatron lawn	MH	Monsanto Hall in Ridgway Visitor Center	🌿	Sassafras
EWC	EarthWays Center	RVC	Ridgway Visitor Center	✿	Members-only event
GGS	Garden Gate Shop			☎	reservations required
KC	Kemper Center for Home Gardening			$	fee required

photos by Sam Bahr, Beth Haines, Brian Mueller, Pat Scace, Christy Siebert, and Emily Snider

MISSOURI BOTANICAL GARDEN
P.O. Box 299 • St. Louis, MO 63166–0299

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MARKET

photo by Christine Siebert

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